Amateur Radio

VOL 54, No 12, DECEMBER 1986 JOURNAL OF THE WIRELESS INSTITUTE OF AUSTRALIA

SQUARE WAVE GENERATOR — Part 2
REMEMBRANCE DAY CONTEST — 1986 Results
ANNUAL AR INDEX
A LOOK AT LC OSCILLATORS

ANDREWS COMMUNICATION SYSTEMS

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Photograph courtesy Peter Koen

Jenny VK5ANW, President of the VK5 Division, presents Marion Centenary Award Certificate No 1 to Mrs June Appleby MP, during the Centenary of the District of Marion. Due to space limitations in this issue, a full feature spread of the event will appear in January.

Amateur Radio

Published monthly as the Official Journal by the Wireless Institute of Australia, founded 1910. ISSN 0002 — 6859. Registered Office: 3/105 Hawthorn Road, Caulfield North, Vic. 3161. Telephone: (03) 528 5962.

Special Features

Technical Features

Regular Features

Now is the time to start "dropping hints" for those last minute Christmas Presents. To aid your selection, many advertisers have taken multiple pages to show what is available.

As is usual in the December issue, the Annual Index is featured on page 22. This index covers the feature articles which have appeared during the year.

Ian VK5QX, the Federal Contest Manager, has compiled the results of the 1986 Remembrance Day Contest (see page 36). Congratulation to the Queensland Division, this year's overall winner.

Also in the Contest Column is the rules for the Commonwealth Contest, conducted by the RSGB over the weekend March 14-15. As this is the 50th year of the contest being conducted there will be special awards presented.

Seasons Greetings to all readers.

(BKP)

DEADLINE

All copy for inclusion in the February 1987 issue of Amateur Radio, including regular columns and Hamads, must arrive at PO Box 300, Caulfield South, Vic. 3162, at the latest, by 9am, January 2, 1987.

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Material should be sent direct to **PO Box 300, Caulfield South, Vic. 3162,** *by the 20th day of the second month preceding publication.* **Note:** *Some months are a few days earlier due to the way the days fall. Watch the space below the index for deadline dates.* **Phone: (03) 528 5962.**

HAMADS should be sent direct to the same address, by the same date.

Acknowledgment may not be made unless specifically requested. All important items should be sent by Certified Mail. The Editor reserves the right to edit all material, including Letters to the Editor and Hamads, and reserves the right to refuse acceptance of any material, without specifying a reason.

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It is impossible for us to ensure the advertisements submitted for publication comply with the Trade Practices Act 1974. Therefore advertisers and advertising agents will appreciate the absolute need for themselves to ensure that, the provisions of the Act are complied with **strictly.**

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Editor's Comment

AN AUSTRALIAN AMATEUR HANDBOOK?

Many of you will by now have obtained your copy of the 1986-87 Call Book. Some of you will be disappointed at its reduced size this year, although regrettably the price is still the same as last year. As has been announced on the Divisional broadcasts, this is caused by the continually rising cost of printing and production, largely due to the diminishing value of the Australian dollar. We have cut costs this time by eliminating much of the technical material which last year comprised half the book.

Some of this material is still useful, but some of it becomes obsolete as time progresses and conditions and techniques change. Rather than repeat each year the more enduring material, we have been discussing for months how to meet your needs without this expensive duplication. Closely related to this is how best we can satisfy the obvious need for an Australian technical handbook as mentioned last month. Perhaps we can combine these related needs and provide a solution at lower cost to all of us than trying to tackle each problem separately.

There would seem to be three possibilities:

a A thin Call Book (like the present issue) containing as well as the annually updated call signs a minimum of other material;
b A thicker volume (like last year) containing about 50 percent call signs and 50 percent other data, much of it unchanged over two or three years;
c An even thicker production which also provides some handbook-type technical material in the form of theory and construction articles.

Obviously these three alternatives are in increasing order of cost. Option 'c' will cost considerably more than 'a'. How much? We can't cost it until we know the market. From your viewpoint it may well be worth it. To go a stage further, rather than expect you to have to hunt through several years' call books to find a particular item, could we perhaps provide the data on detachable pages arranged for filing in a binder? Updates and additions would accompany each year's Call Book, including an updated index. The VK Amateur Handbook would become a living volume, growing larger each year!

As is so often the case, we can only do for you what you tell us you want. So this issue of Amateur Radio is accompanied by a small questionnaire for you to tell us what you think of the Call Book plus Handbook idea. Fill it in and send it back with your subscription renewal. We promise that your reply will be separately processed from your renewal and not associated with your name and call sign unless you want it that way. You want complete anonymity? Send it back in another envelope, if you think it's worth 36 cents!

Another year now has only a few weeks to go. I hope you have all found 1986 better than it might have been. May we (the Publications Committee, the Executive, Betken and I) wish you all a very Merry Christmas and a happy and prosperous New Year.

Bill Rice VK3ABP
Editor
ar

Main QSP

AMATEUR RADIO — the technological pursuit of radio communications by individuals

Radio communications, as a field of technology, has made tremendous advances since the first radio signals were transmitted, which was in very recent times when we consider the history of mankind.

We, as amateurs, have been actively involved in these advances. Amateur radio gives the opportunity for an individual to participate in the many aspects of radio communications — an opportunity that must never be denied.

Although the mysticism of the early achievements of radio amateurs has long since passed and the amateur is no longer considered the local wizard!

There can still be a sense of achievement and self-esteem, in mastering a new technique, proving a theory or finding an alternative simpler way to do things.

With the diverse nature of radio communications there are now many different aspects that attract individuals to amateur radio.

It is also important that the opportunity is always available for anyone to progress as an amateur from the simplest basic aspects of radio communications through to the most sophisticated, finding their own desired level of involvement as they go.

Amateur radio, while realising the technical nature of the pursuits, must not be elitist, entry must be accessible, but on the converse, the pursuit of esoteric techniques must not be inhibited.

To this end, the current trend of self-regulation is to be welcomed.

Of course, some regulation, albeit self-regulation, is necessary to allow for the harmonious co-existence of the many different enthusiasms of the radio amateur.

In conclusion, if the amateur service, which is the pursuit of the techniques of radio communications purely out of self-interest, is to maintain viability, it has to keep moving with the time to make it attractive to the newcomer to attain his or her own goal.

I now take this opportunity of wishing you a Happy Christmas and a Prosperous New Year.

David Wardlaw VK3ADW
Federal President
ar

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TH-205A
ILLUSTRATED

SENSATIONAL OFFER!

2 METRE 5 WATT HAND HELD

Only $275

FEATURES	TH-205A	TH-215A
POWER OUT	5 WATT	5 WATT
FREQUENCY	144 MHz-148 MHz	144 MHz-148MHz
MEMORY CHANNELS	3	10
KEYBOARD ENTRY	NO	YES
UP/DOWN SCAN	YES	YES
FREQUENCY LOCK	YES	YES
EXT. SPEAKER/MIC.	YES (OPTION)	YES (OPTION)
12 VOLT CIGAR PLUG	YES (OPTION)	YES (OPTION)
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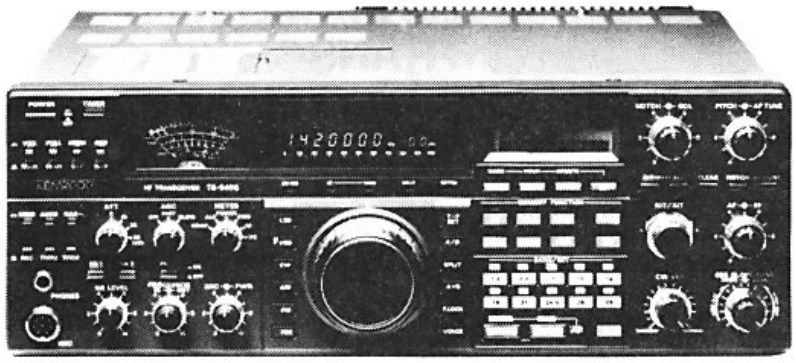
TS-440S
HF TRANSCEIVER
$1585

The TS-440S is an HF transceiver designed for SSB, CW, AM, FM and AFSK modes of operation on all Amateur bands including the new WARC bands. It is the ultimate in compact size with the automatic antenna tuner built-in and featuring a highly efficient final amplifier cooling system. It incorporates a 100 KHz to 30 MHz general coverage receiver having superior dynamic range. Advanced digital technology controls the various functions, including dual digital VFOs, 100 memory channels, keyboard frequency selection, memory and programmable band scan, and RIT plus XIT. Additional operating features include full break-in CW (switchable to semi break-in), built-in automatic antenna tuner, IF shift, notch filter, IF filter selection, RF attenuator, speech processor, and other features for ease of operation and added versatility.



TS-940S
HF TRANSCEIVER
$2950

The TS-940S is a competition class HF transceiver having every conceivable feature, and is designed for SSB, CW, AM, FM and FSK modes of operation on all 160 through 10 meter Amateur bands, including the new WARC bands. It incorporates an outstanding 150 KHz to 30 MHz general coverage receiver having a superior dynamic range (102 dB typical on 20 meters, 50 kHz spacing, 500 Hz CW bandwidth).

Engineered with the serious DX'er/contest operator in mind, the TS-940S features a wide range of innovative interference rejection circuits, including SSB IF slope tuning, CW VBT (Variable bandwidth tuning), IF notch filter, AF tune circuit, Narrow/Wide filter selection, CW variable pitch control, dual-mode noise blanker, and RIT plus XIT.

TL-922
HF LINEAR AMPLIFIER

The TL-922 is a band linear amplifier designed to provide maximum legal performance, utilising two 3-500Z high performance transmitting tubes. Incorporates class AB_2 round-grid amplifier circuit. Excellent IMD (intermodulation distortion characteristics).

$1600

VALVES NOT INCLUDED

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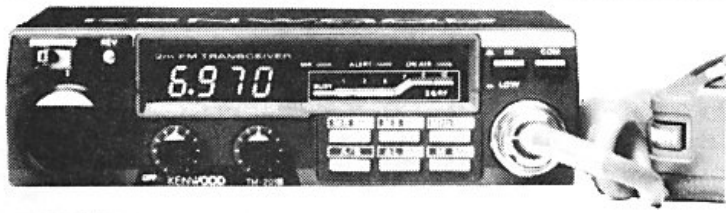
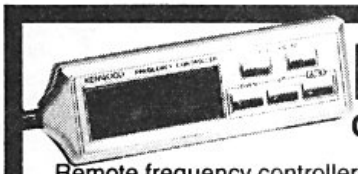
TM-201B
2M FM MOBILE TRANSCEIVER



The KENWOOD TM-201B 2-m FM mobile transceiver is designed to be the ultimate in compact size and lightweight, allowing maximum flexibility in automotive installations. New microprocessor controlled operating features, improved receive and transmit circuitry, a powerful 50 watts of RF output.

Ga As Fet RF Amp.

2 METRES AT A BUDGET $495



FC-10 $20 ONLY

Remote frequency controller only $20 each when sold with each TM-201B during period between Nov. '86 and Jan. '87.

TM-2550A
TM-2570A
2M FM MOBILE TRANSCEIVERS

50 WATTS $650

70 WATTS $695

Ga As Fet RF Amp.

The KENWOOD TM-2550A/TM-2570A 2 meter FM Mobile transceivers have been designed to satisfy the needs of the most demanding 2m mobile operator. A wide range of innovative features have been incorporated in the basic design, including a large, new, easy-to-read LCD display, 23 multi-function memory channels for storing frequency, offset, telephone number and auto-offset.

Compare the TM-2570A with other brands and you will find our 70 watts is the same price as competitors 50 watt models – i.e. 20 watts more for the same price.

TW-4100A
UHF/VHF FM DUAL BAND MOBILE TRANSCEIVER

144-148 Mhz – 420-450* Mhz
2M 50 Watts – 70cm 25 Watts
FULL DUPLEX BETWEEN BANDS
10 MEMORIES
*Adjustable.

NEW MODEL

THE INTRODUCTION OF THE TW-4100A HAS BEEN DELAYED UNTIL FURTHER NOTICE. CONTACT YOUR DEALER FOR DETAILS:

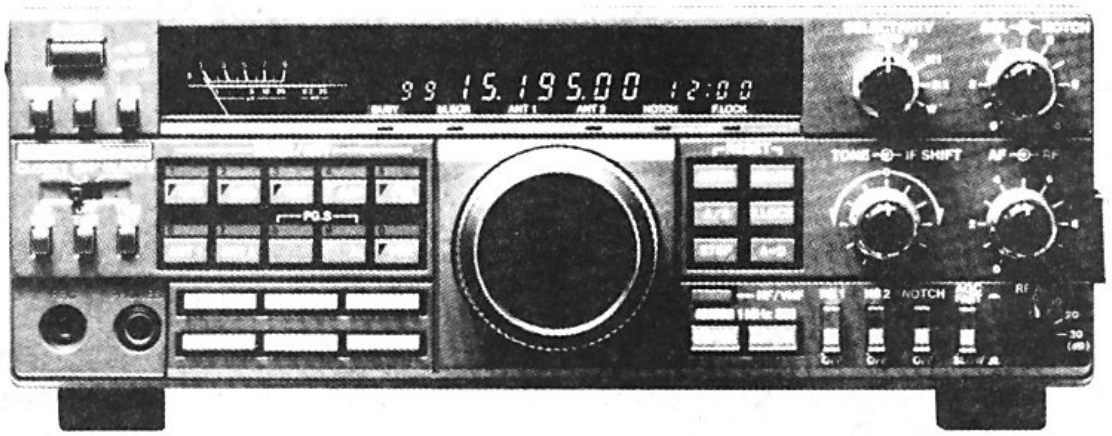
ORDER NOW! $875

STILL AT MARCH '86 PRICES

KENWOOD SUMMER SALE!

R-5000 COMMUNICATIONS RECEIVER

The R-5000 is a new competition grade communications receiver which incorporates every conceivable operating feature. Designed for all modes of reception (SSB, CW, AM, FM, FSK), the R-5000 covers the frequency range from 100 kHz to 30 MHz, and with the addition of the optional VC-20 VHF converter, will also cover the 108 to 174 MHz range, again with all mode reception. The R-5000 has been designed with high performance in mind, and has an excellent dynamic range, together with carefully chosen operating facilities to match today's conditions. Microprocessor control is used for main functions, including dual digital VFO's, 100 memory channels, memory scrolling, memory and programmable band scan, and many other facilities.



CAPTURE THE WORLD ONLY $1075

FEATURES

Coverage is 100 kHz to 30 MHz in 30 bands, with an additional range from 108 to 173 MHz using the optional VC-20 VHF converter.

Advanced microprocessor control allows frequency, band and mode data to be stored, recalled, and displayed, even in the VHF band of the VC-20.

The RF circuits of the R-5000 have been designed to give a high dynamic range, and with the 500 Hz bandwidth selected (YK-88C option), the intermodulation free dynamic range is 102 dB, with a third order intercept point of + 14 dBm, and a noise floor of – 138 dBm.

High stability frequency control.

The reference oscillator which determines the frequency stability and readout accuracy of the R-5000 is accurate to + or – 10 ppm within a temperature range of – 10 to + 50 degrees Celsius.

10 Hz step dual digital VFOs.

Built in dual VFOs operate independently of each other, and allow split frequency and split mode operation. The frequency steps are basically 10 Hz, giving that "True VFO" feel when tuning. The frequency steps are changed to 1 KHz in AM mode, and 5 kHz in FM mode.

Provision is made for the connection of both high and low impedance antenna systems.

Superb Interference Reduction.

Selectivity is enhanced by the use of dual crystal IF filters for SSB, and further features include IF shift and tunable notch filters. The IF filter selection system is fully flexible, in the same manner as the TS-440S transceiver, and offers automatic selection by mode, or manual selection according to the operator's requirements.

A dual mode noise blanker system deals effectively with both impulse noise as well as the "woodpecker".

Keyboard Frequency Selection

Frequencies can be entered using direct keyboard control, and a frequency lock switch prevents accidental frequency changes from occurring.

100 Memory Channels Capability

100 memories are provided, which store frequency, mode, and which antenna has been selected. Memory information can be scrolled to review contents of any memory channel.

Memory Scan and Programmable Band Scan.

Further memory facilities include memory scanning with programmable memory lockout, and programmable band scanning with centre stop for accurate on-channel tuning.

Plus a full list of other desirable features:

• Dual 24 hour clocks with timer • Optional VS-1 voice synthesiser for frequency announcement • Optional control by personal computer using the IF-232C interface • Lithium battery backup of memory contents • Built in AC power supply and option to use the receiver on 13.8 volt DC supplies • High quality internal loudspeaker • AGC time constant switchable fast/slow • Switchable RF input attenuator (0 to 30 dB in 10 dB steps).

To summarise: the R-5000 from KENWOOD offers the operator a top performance communications receiver of the very highest quality, with all the features and functions which the discriminating user could demand.

With the R-5000, KENWOOD gives the dedicated listener a receiver which will match the performance of the very best transceivers available today.

KENWOOD SUMMER SALE!

STILL AT MARCH '86 PRICES

TS-711A 2M
TS-811A 70 CM
ALL MODE TRANSCEIVERS

The TS-711A 2-m and the TS-811A 70-cm all-mode transceivers feature enhanced ease of operation through the use of new microprocessor technology that permits the incorporation of the widest range of innovative features in a very compact package. These features include KENWOOD's new, exclusive DCS (Digital Code Squelch), 10-Hz step dual digital VFO's, a new, multi-function fluorescent tube digital display, 40 multi-function memory channels, programmable band scan, memory scan, mode scan, auto mode function, "quick-step" main tuning dial, IF shift, speech processor, all-mode squelch, noise blanker and an easy-to-operate front panel design.

TS-711A $1290

TS-811A $1335

TS-670 ALL MODE "QUAD-BANDER" TRANSCEIVER

FITTED WITH GC-10 GENERAL COVERAGE RECEIVER

XMAS SPECIAL $880 VERY LIMITED STOCKS

The TS-670 "Quad-Bander" is a unique all-mode transceiver that covers the 6 meter VHF band, and the 10,15 and 40 meter HF bands, combining the ultimate in compact size with advanced circuit design and performance. This outstanding radio may be purchased with an optional general coverage receiver that tunes continuously from 500-KHz to 30-MHz. Key features include dual digital VFO's, 80 memory channels, memory scan, programmable band scan, frequency direct key selection, a two-colour fluorescent tube display with function indicator LED's, IF shift and squelch.

TR-751A
2M ALL-MODE TRANSCEIVER

The TR-751A all-mode, 2-m transceiver delivers superior performance and "All Mode Mobility". Packed with all of the most often needed features including auto-mode selection, dual digital VFOs, 10 memories plus "COM" channel, programmable CTCSS tone, various scan functions, all-mode squelch, noise blanker, RIT, DCL (Digital Channel Link) and easy-to-operate front panel layout. And, designed with the latest state-of-the-art technology, this compact rig is the one to choose for VHF stations on-the-go.

NOW ONLY

$750

STILL AT MARCH '86 PRICES

KENWOOD SUMMER SALE!

DIGITAL CODE SQUELCH

TRIO-KENWOOD's new DCS "Digital Code Squelch" is a revolutionary signalling concept for Amateur Radio that utilises current state-of-the-art technology. This new technology is a major feature of all Kenwood new generation equipment. The DCS should not be confused with conventional CTCSS (Continuous Tone Coded Squelch System). DCS uses a 5 digit, digitally coded data string, to open squelch on a receiver that has been programmed to accept this same specific code group. By utilising a 5 digit code group the operator may choose from 100,000 possible combinations, thus providing increased security. In addition to the 5 digit "access code" the DCS also transmits the operators call sign, in decimal ASCII code. Call signs of a maximum of 6 digits may be entered. By using the optional CD-10 Call Sign Display, the operator may store incoming call signs, for later review or logging.

ALL KENWOOD NEW GENERATION EQUIPMENT FEATURES DCS CAPABILITY:

PLUS TM-211A
TM-411A
TM-2550A
TM-2570A
TW-4100A
TS-711A
TS-811A
TR-2600A

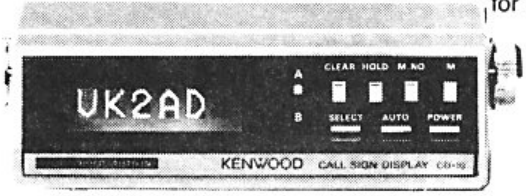
100,000 different 5 digit code groups.
Convenient keyboard entry of the "access code" is possible with all models equipped with the DCS.

Capable of monitoring multiple access codes.
The DCS codes, and call sign data, are stored in separate memory locations within the host unit. This allows the operator to monitor several access code groups at one time. Clubs and nets will find this function useful, as will operators who wish to listen for more than one group at a time.

CD-10
The CD-10 store the call sign of calling station in its memory and displays it on an LCD display. Call signs of up to 20 of the most recently calling stations are stored, allowing the operator to quickly check for and return any call.
DCS Decoding. Decodes the digital ASCII call sign data that is a portion of the DCS data string.

Automatic Call Sign Transmission.
A 6 digit Amateur "Call Sign" is entered into the DCS memory using decimal ASCII coding, by use of the front panel keyboard. This call sign is then transmitted in conjunction with the DCS data string each time the P.T.T. switch is despresed or released. By using the optional CD-10 Call Sign Display the operator can automatically store up to 20 different call signs. This feature is useful for unattended monitoring of the radio. Upon return to the station the operator can review the CD-10 memory to determine who tried to contact him during his absence. This function is also useful for logging purposes.

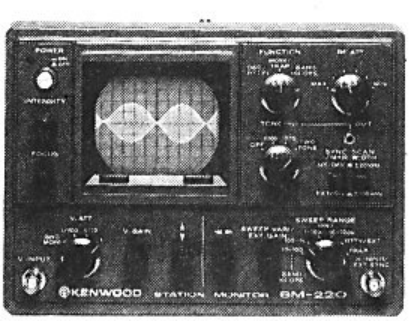
CD-10



CALL SIGN DISPLAY SYSTEM $160

INCLUDES FREE AC ADAPTOR

PC-1A PHONE PATCH CONTROLLER $96

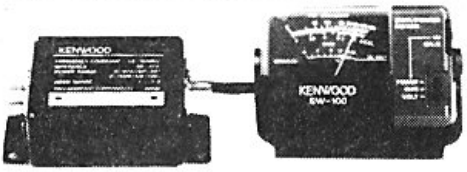


SM-220 STATION MONITOR VALUE AT $555

The SM-220 station monitor features a built-in two-tone generator for, a wide variety of waveform-observing capabilities.
An optional feature is a unique panoramic display capability. The SM-220 provides efficient station operation as it monitors transmitted waveforms, and it also serves as a high-sensitivity, wide-frequency-range oscilloscope for various adjustments and experiments.

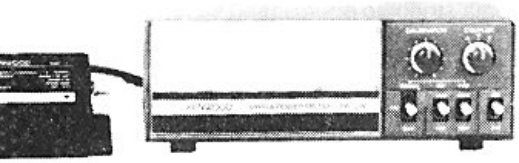
KENWOOD SUMMER SALE!

STILL AT MARCH '86 PRICES



SW-100 A/B $75

SWR/POWER METER
Compact and lightweight SWR/POWER/VOLT meters cover 1.8 – 150 MHz (SW-100A), 140 – 450 MHz (SW-100B) in range of 150W full scale for mobile use.



SW-200 A/B $150
SW-2000 $160

SWR/POWER METER (Supplied With A Coupler).
SW-200A supplied with SWC-1, SW-200B supplied with SWC-2, SW-2000 supplied with SWC-3. Selectable peak-reading/RMS, SWR/POWER meters cover 1.8 – 150 MHz (SW-200A), 140 – 450 MHz (SW-200B), 1.8 – 54 MHz (SW-2000) in range of 0 – 20/200W (SW-200A/B), 0 – 200/2000W (SW-2000) full scale to base station use.

AT-130 $180

ANTENNA TUNER
The AT-130 is a compact and lightweight antenna tuner designed for base or mobile use. It consists of an antenna coupler, an SWR meter and an antenna switch.

MC-60A $120

MC-60A (8 Pin)
Deluxe Desk-Top Microphone With Built-In Pre-Amplifier.

MC-80 $70

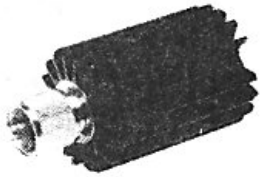
MC-80 (8 Pin)
Desk-Top UP/DOWN Microphone With Built-In Pre-Amplifier.

MC-85 $140

MC-85 (8 Pin)
Multi-Function Desk-Top UP/DOWN Microphone With Built-In Audio Level Compensation.

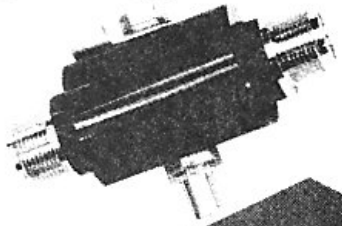
RF DUMMY LOAD (20W continuous)
• Impedance: 50Ω • Frequency range and V.S.W.R.: DC~500 MHz, 1.1:1 • Input power' 20W (continuous) 50W (intermittent – 1 minute ON, 3 minutes OFF) • Maximum temperature: 200°C (329°F) • Cooling: Natural air flow • Connector: M type connector.

RD-20 $32



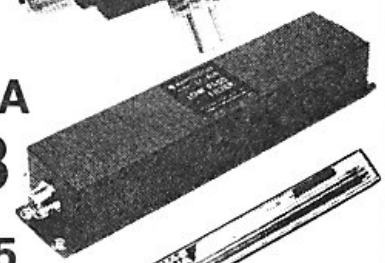
LIGHTNING & STATIC PROTECTOR
AL-1: Handles 100W output at 50Ω with SQ-239 Connector.
AL-2: Handles 1 kW output at 50Ω with SQ-239 Connector.

AL-1 $40



LOW-PASS FILTER
• Cutoff frequency: 30 MHz • Attenuation: More than 90 dB between 90 and 300 MHz • Durability against input power: 1 kW PEP • Insertion loss: Less than 0.5 dB at 30 MHz • input/output impedance: 50Ω.

LF-30A $53

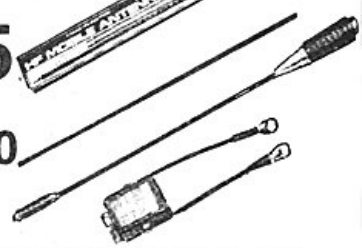


MA-5
80-m/40-m/20-m/15-m/10-m.
Five Band Helical-type HF Mobile Antenna.
The MA-5 is a multi-purpose HF antenna for mobile operation.

MA-5 $205

MA-4000 (50Ω)
2-m/70-cm Dual Band Mobile Antenna with Duplexer.
The dual bander's ability of the TW-4000A can be brought into full operation by combining the MA-4000.

MA-4000 $65



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DCK-1 DC CABLE KIT WAS ~~$11~~ (for R-600/1000/2000) **NOW $7**

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MORE ABOUT A MULTIBAND END-FED INVERTED-VEE AERIAL SYSTEM

Written by Colin Dickman ZS6U

Reprinted from RADIO ZS, January 1978 and contributed to AR by James Crichton VK2XFC

The aim of this article is to provide a summary of the article published last month and to expand on some of the details therein.

By using a wire two wavelengths long at 10 metres, a very simple band-switched L-network matching unit can be used to preselect 10, 15, 20, 40 and 80 metres, quickly and reliably.

The system is preadjusted to provide a purely resistive load to the transmitter. Unlike other multiband systems there is no reactance present to cause loading difficulties accompanied by RF in the shack, BCI and like problems.

There are no transmission line losses, consequently all of the RF from the transmitter is radiated by the antenna.

By using lobe alignment, the antenna yields useful directivity and gain over a dipole or vertical, especially at the higher frequencies.

On reception, the antenna has a greater capture area at the higher frequencies than a dipole or vertical. In addition, the L-network provides a degree of selectivity. The two together result in a stronger, cleaner signal.

The two-wavelength version requires less than 14 metres of ground space.

The length of the wire is obtained from the formula:

$$L \text{ metres} = \frac{984\,(N - 0.0125)}{f\,(MHz)} \times 0.3048$$

N = Number of wavelengths at the highest frequency.

For example, for two-wavelengths at 28.6 MHz, L = 20.84 metres. This is the overall length of the wire right up to the antenna terminal of the L- network.

The circuit diagrams for L-networks for two and four wavelength antennas together with coil taps and dimensions are shown in Figures 4 and 5. The preadjustment procedure is to insert a SWR bridge in the coax between the rig and the L-network, switch it to the reflected power position and, using sufficient carrier on 40, 20, 15 and 10 metres in turn, adjust the capacitor C for the lowest dip in the meter reading. With the two-wavelengths system there is no tuning on 80 metres and capacitor C is merely set to minimum capacity. With the four-wavelength system, the adjustment procedure for 80 is the same as for the other bands. Mark each band setting of capacitor C on its dial so that band changing merely involves switching the bandswitch and turning C to the calibrated mark for that band before loading up the rig.

COIL DIAM mm	COIL LENGTH mm	WIRE DIAM mm
35	38	0.95
38	47	1.17
41.3	56	1.4
44.5	66	1.65
47.6	77	1.9
50.8	88	2.2

Table Figure 4.

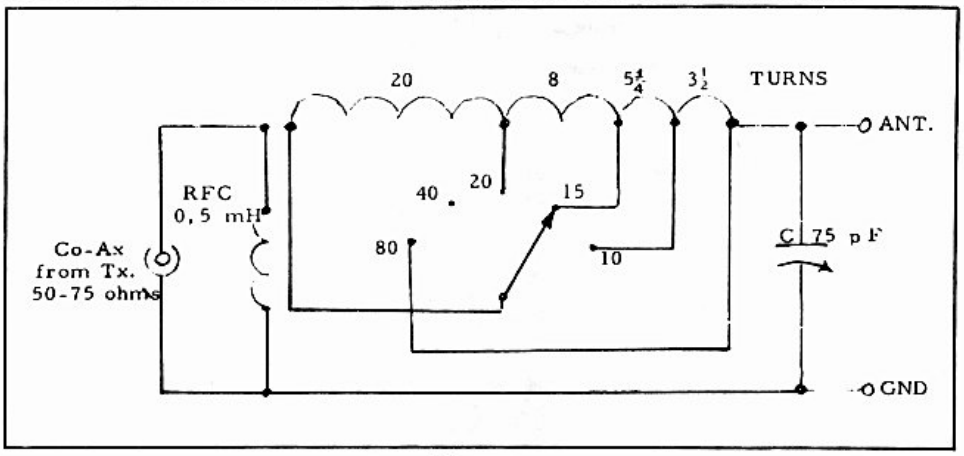


Figure 4.

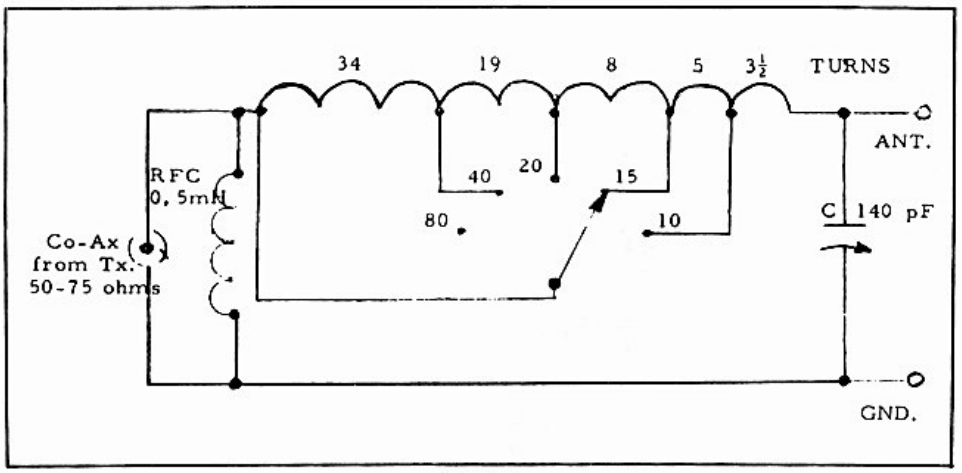


Figure 5.

For greater detail, readers are referred to the previous article.

MORE ABOUT WIRE CONFIGURATIONS

Having stretched and cut your measured piece of wire, you will be looking for some way to string it up. The simplest way may be to use an L- shape or you may need to take the wire in various directions to get it in the clear. Although all the power you put into this antenna will be radiated irrespective of the wire shape, random shapes will not do full justice to the fine performance potential of the antenna. There are certain preferred configurations which will put the signal where it will do the most good. Be assured that the extra effort will be well worthwhile.

The principle of lobe alignment has been used in the three recommended configurations shown in geometric form in Figures 1, 2, and 3 to achieve useful gain at low wave angles. Using the formula and example above, two wavelengths = 20.84 metres and four wavelengths = 41.82 metres.

COIL DIAM mm	COIL LENGTH mm	WIRE DIAM mm
35	64.8	0.95
38	77.9	1.16
41.3	93.3	1.37
44.5	109.5	1.60
47.6	126.1	1.85
50.8	144.4	2.1

Table Figure 5.

Figure 1 depicts the standard ZS6U Mini-shack Special, which is two-wavelengths long on 10 metres and a quarter-wavelength on 80 metres. In this configuration, the change in direction of the wire at the apex splits the antenna into two one-wavelength sections. Starting with the 50 degree lobe angle of a one-wavelength antenna in free space, the wire tilt, apex angle and height can be derived. The two pairs of horizontal lobes tend to reinforce to produce low angle, bi-directional radiation along the

plane of the wire. As with all end-fed antennas, the lobe amplitude in the free end direction exceeds the reverse lobe due to progressive radiation loss along the wire. The gain due to the two-wavelength wire which is about 1.5 dB, is added to the gain from lobe reinforcement, which is about 3 dB to provide a total gain of about 4.5 dB in a wide beam at a vertical angle of less than 10 degrees in the direction of the open end of the wire. The theoretical patterns are shown in the accompanying vertical and horizontal — plane diagrams for 10 metres. On the lower frequency bands, the lobes become progressively mis-aligned resulting in higher angles of radiation with less directivity and gain.

Figure 2 is the full size ZS6U Special which is four-wavelengths long on 10 metres and a half-wavelength on 80. Here the tilt angle is 35 degrees resulting in a triangle having a height of 12 metres. If the dimension, which represents the height at which the wire is connected to the L-network, is taken to be 1.5 metres, then the pole height would be 12 + 1.5 = 13.5 metres compared with 9.5 metres for Figure 1.

Due to the larger dimensions, the gain of this configuration is about 6 dB on 10 metres with a somewhat narrower beamwidth than Figure 1. As long as the full height is used the performance on the five bands is marginally better than the mini-version by about 1.5 dB on each band. If the best possible performance is desired on 80 metres, this is the version to use. It requires the L-network shown in Figure 5.

The lobe alignment principle for low wave angles is also employed in Figure 3, which is half of the inverted-Vee of Figure 2, having the same tilt angle and height, but using only two-wavelengths of wire. As the polar diagrams indicate this version is less desirable than Figures 1 and 2, but is preferable to a straight wire or a random shape. Apartment dwellers please note that this version may be used sloping downwards at the angle shown with good results. You will need to be on the fourth floor or higher.

METAL OBSTRUCTIONS

The near side of the wire is at high impedance on all bands and should therefore be insulated and kept as far as possible from metal obstructions such as metal window frames, gutters, cables, etc. For example, it is not a good idea to close a metal-framed window, etc with the wire clamped between the metal parts. Ideally, the near side of the wire should be secured to an anchor insulator and then should enter through an air brick or wooden-framed window. If a metal-framed window is the only entry point, a small hole should be drilled in the centre of the glass pane (or plastic sheet replacing the glass).

The support for the apex of the antenna should preferably be a wooden pole guyed with nylon rope or metal wire, broken up by egg insulators. In certain cases, where there are two suitable high points on either side of the antenna plane, they can be joined horizontally by nylon rope and the antenna wire thrown over the rope to form the apex.

If s metal pole is used, it is best to shift it two or three metres to one side so that it does not lie precisely in the vertical plane of the antenna. The resulting slight tilt in the plane will have little effect on the performance.

MORE ABOUT ORIENTATION

All three configurations described show decided gain in the direction of the free end of the wire and should therefore be erected pointing in the desired direction. If space allows, two antennas may be erected at right angles and switched alternately to the L-network antenna terminal by means of a porcelain insulated knife switch. Little is to be gained by joining two such antennas together as the power in

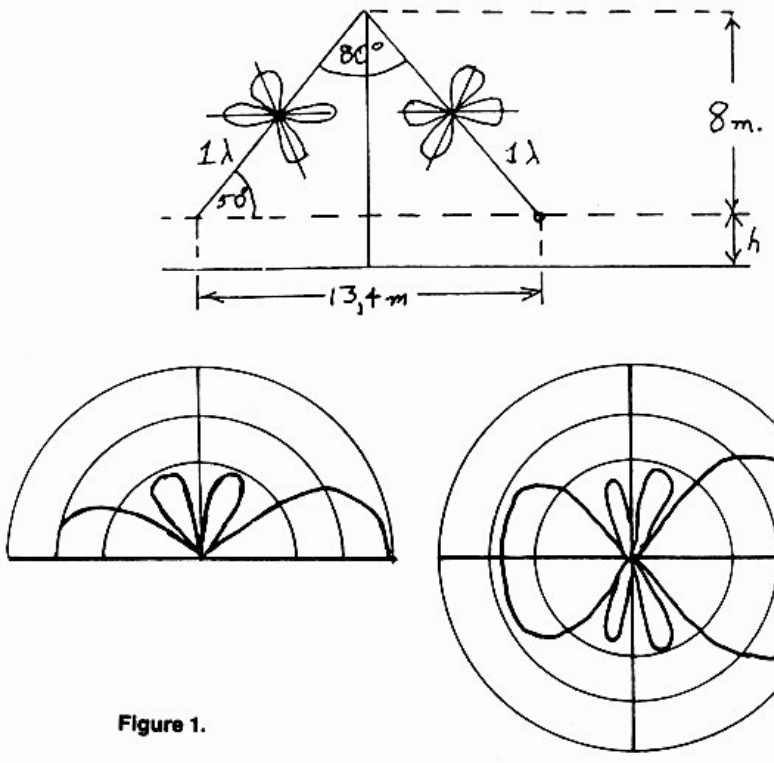


Figure 1.

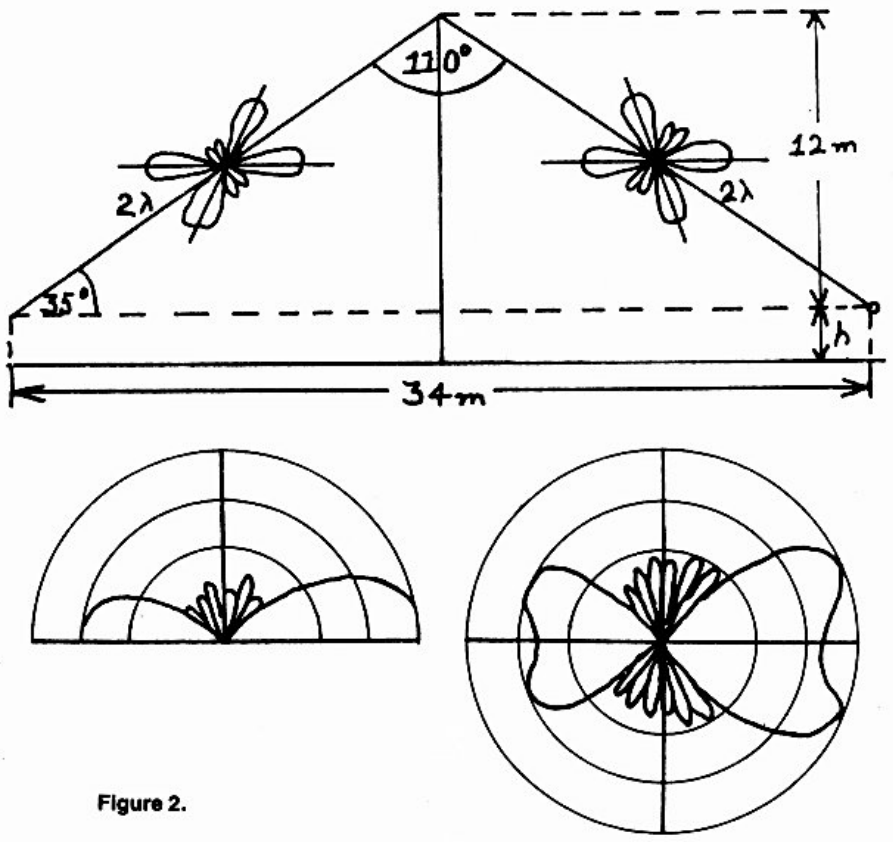


Figure 2.

THE ZS6U MINISHACK SPECIAL — ILLUSTRATION FIGURES 3, 4 and 5

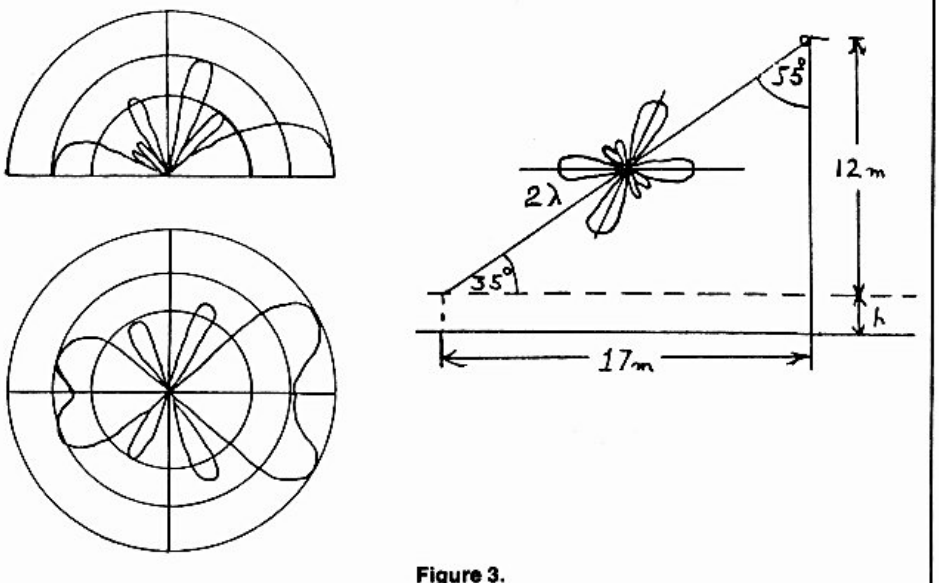


Figure 3.

each would be halved. The impedance at the feed point would also be halved, upsetting the matching of the L-network.

MORE ABOUT THE L-NETWORK

Figure 4 shows the network for two-wavelength antennas of the sort shown in Figures 1 and 3. Figure 5 is the network that must be used with the antenna of Figure 2. The network of Figure 5 can also be used with lengths of 8, 12, 16, 20, etc wavelengths for the adventurous experimenter. The lengths above are given for 10 metres as this is the highest frequency we have been considering, but there is no reason why, using the information given in the original article a system should not be adapted for six or two metre inverted-Vee antennas.

One of the problems facing builders of the original L-network was that I used a piece of 35 mm OD polyethylene tubing for the former and based my coil data on that. Well there is a way for you to use the same number of turns and the same taps with a different diameter former. I derived the following formula, where l_1 and d_1 represent the given length of winding and diameter of coil, and l_2 and d_2 represent the new length and diameter:

$$L_2 = L_1 \frac{d2^2}{d2} + \tfrac{1}{2}(d_2 - d_1)$$

The formula is accurate over a 1.5:1 range. I have worked out a set of values for three and one for both networks, which are presented together with Figures 4 and 5. For example, if you use a coil diameter of 38 mm for the network of FIgure 4, you must spread the 20 turns evenly to occupy a winding length of 47 mm. The maximum wire diameter given (in this case, 1.17 mm) is derived from a spacing between the turns equal to the wire diameter. Use the nearest smaller standard size. An air wound coil has the lowest losses, but if you use a former make sure it has a reasonably lower power factor at 30 MHz. The switch is of the ordinary single-pole, five- position, wafer variety and the condenser should have a spacing of at least 0.5 mm between the plates, otherwise arcing may occur. Enclose the unit in a plastic box. If a metal box is used, the coil should clear the metal by at least 25 mm on all sides.

I must emphasise that the L-network must be looked upon as the equivalent of a quarter-wave transmission line and that resonance on each band (and therefore pure resistive load) is indicated by a dip in reflected power reading. These dips should be found once and the condenser scale calibrated for future operating. If you insist on leaving your SWR bridge permanently in the coax, then there are a few words of advice. As amateurs are inveterate experimenters it will not take long to discover that if you fiddle with the L-network condenser while tuning up (contrary to instructions) you may find the setting to one side of the correctly marked setting which gives a higher reading on the "forward power" scale of the SWR bridge. You are about to fall into the trap of believing that you have discovered a way to radiate more power. But alas, in reality the higher reading is due to undesired resistive voltage being added to the desired resistive voltage. The moral is: interpret SWR meter forward readings with caution.

MORE ABOUT THE TWO-WAVELENGTH ANTENNA ON 80 METRES

Some constructors have had difficulty loading on 80 metres. On this band the antenna is a quarter wave long and an earth is essential for its operation. As with any quarter wave antenna, every metre of earth lead adds to the overall length of the antenna system.

If your earth system is so unsuitable that the antenna will not take power on 80 metres, there are three ways of handling the problem.

a If the earth lead is about five metres long, or less, use a variable condenser of about 300 pF with about 0.5 mm plate spacing in series with your antenna wire to cancel out the inductive reactance thereby electrically shortening the antenna. Set the condenser for minimum reflected reading in the SWR bridge. This condenser should be shorted out during operation on the other bands.

b Use can be made of the property of a half-wavelength of wire to repeat at its near end the conditions that exist at its far end. Choose an earth point sufficiently far away to accommodate about 39 metres of earth lead, the far end of which is then soldered to the earth point. Use insulated wire because the centre of the halfwave will be at RF potential above ground. By varying the length of this lead, the antenna can be brought into exact resonance.

c Use can be made of the property of a quarter wavelength of wire to act as an inverting transformer. Take a piece of insulated wire about 19 metres long, connect one end to the earth terminal of the L-network and leave the far end free. The excess wire can be stapled around the skirting of the shack or hung out of the window or trailed along the ground, but must not be grounded. As in (b), above its length can be trimmed to provide exact resonance. It should be noted that with this method an additional electrical earth must be provided to the rig for lightning and mains protection. If the protective earth connection upsets the antenna resonance, connecting an RF choke in series with it consisting of a close wound single layer of PVC insulated wire on a 10 or 15 mm ferrite rod to isolate it from the RF earth. In any case, it is good practice to use such a choke, especially when the mains earth is used to reduce RF interference with your neighbours.

Here's wishing you an outstanding signal!

—er

QSP

GOLDEN ANTENNA AWARD

With a view to encouraging the world-wide production of high quality films and audio-visual programs in the field of telecommunications and electronics, the ITU is organising *Golden Antenna 87,* the Fifth International Festival of Telecommunications and Electronics Films, within the framework of *Telecom 87,* the Fifth World Telecommunications Exhibition, which will take place in Geneva from October 20-27, 1987.

The Fourth Film Festival, which took place in 1983, was a remarkable success with a record number of entries: 80 films and tape-slide presentations from 20 countries and three international or regional organisations. Australia took part in *Golden Antenna 83* and that production, which was seen by a large audience including international specialists, aroused particular interest. It was a good example of how the basic aim of the festival was achieved.

As in 1983, it is intended to screen the films chosen for the Festival throughout *Telecom 87* so that as many visitors as possible can see them and evaluate the progress made in the vast field of telecommunications, and its impact on socioeconomic development in today's world.

The Festival hopes that Australia will participate in the 1987 Film Festival, which has become an important feature of *Telecom 87,* a fact which is confirmed by the number of acceptances already received.

—Contributed by A G El-Zanati, Film Festival Director

The Wireless Institute of Australia would once again like to participate in this prestigious event.

Any members with experience in film making, and who would be willing to assist the Institute in preparing an entry, should contact their Federal Councillor, or the General Manager of the WIA at: PO Box 300, Caulfield South, Vic. 3162.

An OBLIQUE VIEW OF LC OSCILLATORS

Don Law VK2AIL
RMB 626, Adelong Road, Tumblong, NSW. 2729

Watt for watt, those ancient cycles would travel as far as modern transmitters now send them.

It has always struck me as being a bit off the mark to discuss the operation of LC oscillators in terms of 'when the base (or grid) goes this way the collector (or anode) does this or that and tickles, couples, pushes or pulls or whatever and maintains oscillation.' Invariably each type of oscillator requires a different explanation. All perfectly valid of course; but isn't it rather like putting the cart before the horse? After all, LC circuits were oscillating quite happily long before the days of valves and transistors. As man has always travelled, moved from A to B, so LC circuits have always been capable of oscillation; like bells do ring. Where man can accomplish his transposition in diverse ways, ie by plane, rail, road or being fired out of a cannon; travel being the thing; tuned circuits may be blasted, shocked or fired into oscillation. A means to an end. The early spark transmitters are a classic example. One great big spark and a dozen or so exponentially diminishing RF cycles of oscillation occurred. Here the parallel with the cannon-propelled man ends. Watt for watt those ancient cycles would travel as far as modern transmitters now send them. By rapidly repeating the spark in an attempt to sustain oscillation, information (Morse) could be transmitted to a remote receiver that also had no active components. Unless one could argue that a coherer fell into this category.

The point I make is that oscillatory current in an LC circuit, or a precise frequency determined by

$$f = \frac{1}{2\pi\sqrt{LC}}$$

is the thing. How sustained oscillation is accomplished seems secondary. This view is supported by the inordinate number of devices and circuits designed to do it. There is no one way. Only the LC circuit itself retains its originality and does what it has always done. Why doesn't it oscillate continuously? Well, why doesn't a bell ring forever when hit with a hammer? Because of metal stress and heat losses, air resistance and support damping losses. It takes energy to do things; once that energy is dissipated there is no more.

The losses in an LC circuit are coil resistance (including skin effect at high frequencies), capacitor dielectric resistance (leakage) and dielectric absorption. (Ever had a belt off a television picture tube hours after it had been discharged?).

Tuned circuit losses, the cause of oscillations being 'damped' as energy passes back and forth between coil and capacitor, may be lumped into a single equivalent resistance value. To press home my point, that active devices are secondary in oscillator circuit explanation, is the fact that by introducing an equal amount of negative resistance into the circuit, the cause of 'damping' is removed and sustained oscillation takes place. Series- wise, R = zero. It no longer exists. The tetrode valve may be used to provide the negative resistance. Due to secondary emission, the anode characteristic has a negative resistance region. As the anode potential is increased the anode current decreases, (over a portion of the curve). See Figure 1.

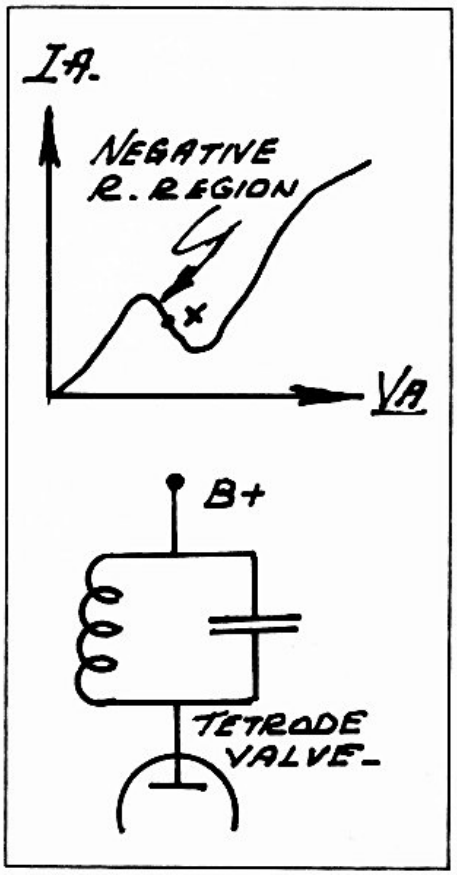


Figure 1.

If a parallel tuned circuit is placed in the anode circuit, and the anode voltage adjusted to point X (on the curve), oscillation will occur. Ah! you may exclaim, but you have used an active device! Alright! Then I will use a diode. A tunnel diode, that is surely passive. See Figure 2.

At 0.58 volts my circuit oscillates continuously. Get the point? All that is necessary is a means of adding or introducing into the LC circuit sufficient negative resistance to cancel the resistance of the tuned circuit. What about power oscillators you may ask? Oscillators used to drive power amplifiers.

Surely power must be provided by the active device. Sure it is, in the right form and at the correct timing but it originates from the power supply; as it does in the tunnel diode oscillator. And, because taking power from an oscillator results in increased equivalent series resistance in the LC circuit, reduced Q factor, more negative resistance is required and is provided by a harder working active device.

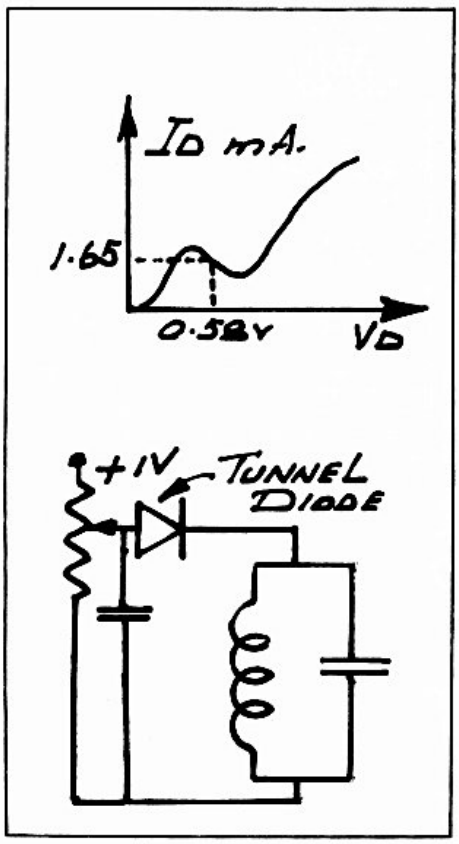


Figure 2.

So whatever type of LC oscillator you come across, think first 'Tuned Circuit, Resistive Losses,' then 'source of negative resistance and how introduced.'

I did mention that this was an oblique approach, but it is worth a few moments thought.

ar

SPECIAL CONDITION

As many amateurs are aware, the Department of Communications (DOC), at present, allocates frequencies within the 576-585 MHz band for amateur television repeater transmitters. However, this is done on the basis that amateurs may employ the band until such time as it is required for use by the broadcasting service, around late 1987.

To give amateurs ample warning, all new and reissued amateur television repeater licenses in the band 576-585 will include special condition 54, which states:

> Future assignments for this frequency band are currently under review and licensees may be required to change frequency or to cease transmission completely, when this review is done.

Signed: J Higginbottom
Manager Licensing
Operations Branch
Department of Communications
ar

A SQUARE WAVE GENERATOR

Part Two

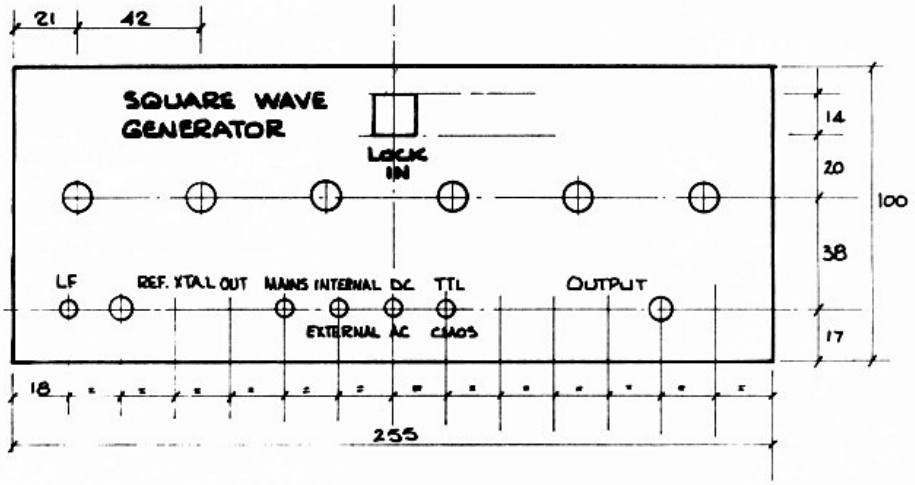


Figure 8 — Front Panel Layout.

Ken Kimberley VK2PY
21 Nicoll Street, Lakemba, NSW. 2195

Last month, Part One of this article described the theory of operation and design of a phase-locked, variable frequency square wave generator. Part Two looks at the construction and testing of the unit.

Firstly, to the metal bashing.

The unit was squeezed into a *Norwood* case, type number B4/10/V, purchased from Dick Smith Electronics, Catalogue Number H2455.

Actually, there was sufficient space inside the case, but the front panel is a little on the small side for my liking.

A scrap pf aluminium sheet, sized 180 x 150 x 1 mm was obtained. This was then fitted, by means of angle brackets, 30 mm up from the bottom of the case. Mount it flush with the rear wall, leaving a clear gap behind the front panel to give access to the switches and their associated wiring — thus forming what we OTs used to call a chassis.

Next came the front panel layout, details of which are shown in Figure 8. The sizes shown suit the components used by the author and may require alteration to suit those used by the individual.

After making all of the holes, check your handiwork by temporarily mounting the switches, etc. Satisfy yourself that everything fits as intended and nothing has been missed. If all is well, remove and store these parts.

The next stage is painting the front panel. Proceed as follows.

Firstly, remove the sheen by rubbing the aluminium with some steel wool and a little elbow grease. This provides a surface to which the paint will adhere more readily.

Now, using a paint pressure pack, spray on the primer, followed by two coats of your favourite coloured enamel. Be sure to follow the paint manufacturer's directions carefully, especially in regard to time between coats.

Label as desired and a coat of clear lacquer will complete the embellishment. Engraved dial knobs (Cat No H3770) were used for the decade frequency selector switches, thus considerably reducing the artwork required.

Modular Construction was used for the electronics. Four individual boards were used, five if the crystal oscillator is counted. Boards One and Two are on the top-side of the chassis and run parallel with the front. They are mounted to the extreme left and front so as to leave enough room for the power supply and oven. Three and Four are placed on the bottom, immediately below One and Two.

In the interests of brevity, power supply and board mounting, etc will not be detailed. The following items are on the rear panel:

Mains Input Grommet
Fuse
12 and 15 volt Regulators
SO239 Coaxial Socket for the External Drive Input.

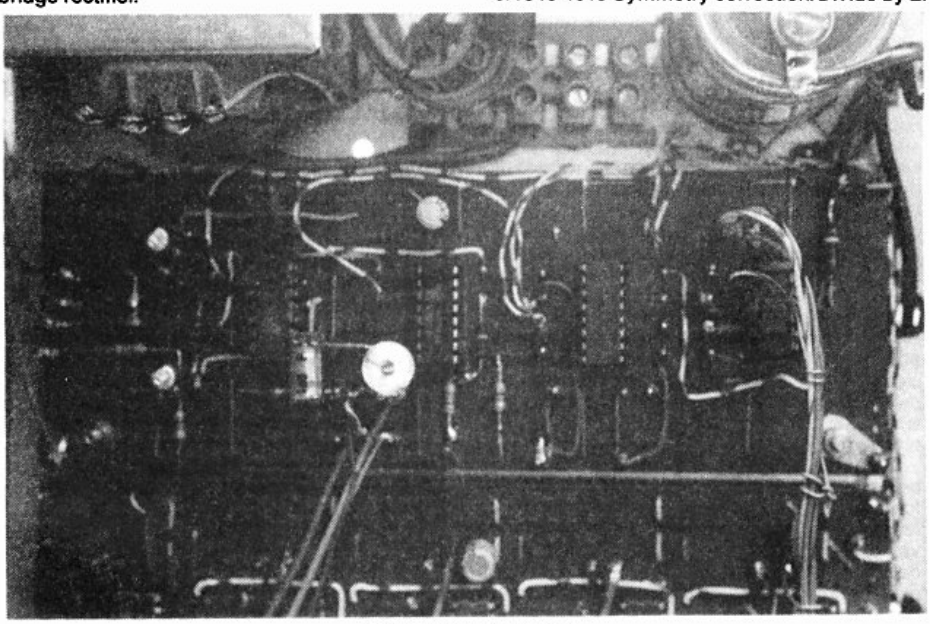
The top side of the chassis carries boards One and Two, power transformer, mains terminal block, 3000 uF electrolytic capacitor and, of course, the reference oscillator. The underside has boards Three, Four and the bridge rectifier.

Having drilled holes for the above, mount and wire the power supply components. Carry out "the smoke test" and if all is well 12 and 15 volts will appear at the output lugs of the two regulators.

ELECTRONICS

The main electronics are built onto four hard wired DIL boards (Cat H5602). The contents are itemised below and are enumerated from left to right:

NUMBER ONE. The VCO — Figures 4 and 9.
a. TR2 (BC108 or similar) "Lock Indicator" drive.
b. TR1 (BC108 or similar) TTL to 12 volt CMOS converter.
c. IC13 4013 Symmetry correction/Divide by 2.



The Wired PLL Board.

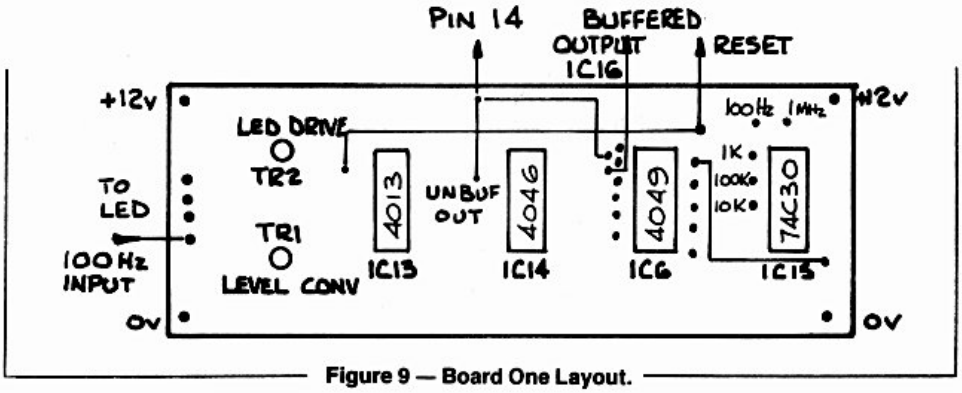
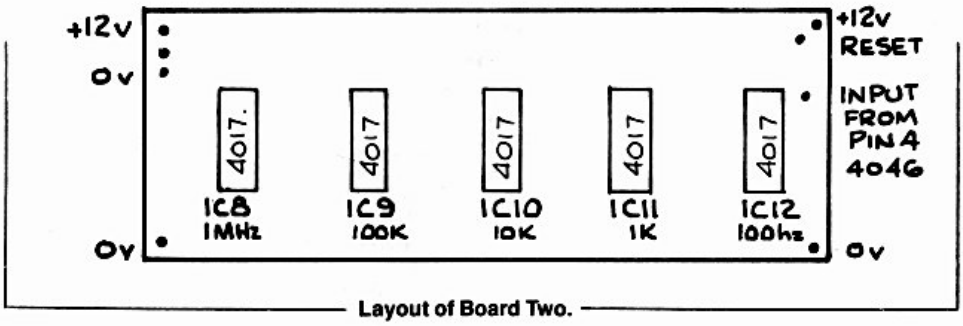


Figure 9 — Board One Layout.



Layout of Board Two.

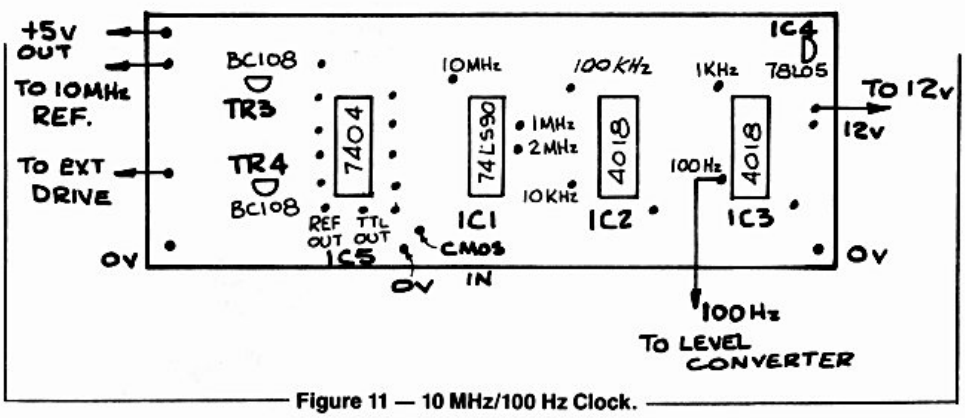


Figure 11 — 10 MHz/100 Hz Clock.

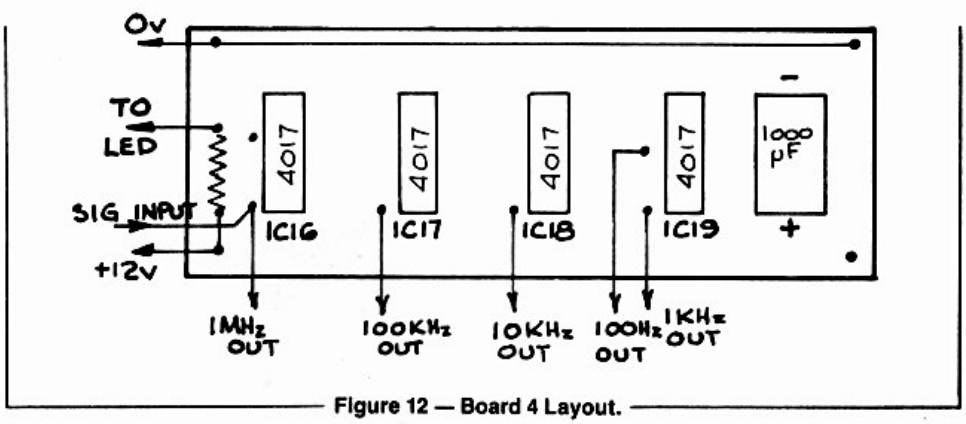


Figure 12 — Board 4 Layout.

d. IC14 4046 Phase comparator and VCO.
e. IC6 4049 Hex Inverter, Buffers, etc.
f. IC15 74C30 Summing gate.

NUMBER TWO. Programmable Divider — Figures 3 and 10.
Contains five integrated circuits.
a. X 1 MHz IC8 4017.
b. X 100 kHz IC9 4017.
c. X 10 kHz IC10 4017.
d. X 1 kHz IC11 4017.
e. X 100 Hz IC12 4017.

NUMBER THREE. 10 MHz Clock/100 Hertz — Figure 2 and 11.
a. TR3 (BC108 or similar) Internal 10 MHz Shaper/Amp.
b. TR4 (BC108 or similar) External 10 MHz Shaper/Amp.
c. IC5 7404 CMOS to TTL, plus buffers for items (a) and (b), as well as spare.
d. IC1 74LS90 Divide by 10 to 1 MHz.
e. IC2 4518 Dual divide by 10 to 10 kHz.
f. IC3 4518 Dual divide by 10 to 100 Hz.
g. IC4 78LO5 Five volt regulator.

NUMBER FOUR. Down Range Extender — Figures 5 and 12.
Contains four integrated circuits.
a. IC16 4017 Divide by 10.
b. IC17 4017 Divide by 10.
c. IC18 4017 Divide by 10.
d. IC19 4017 Divide by 10.
Total available division is 10 000.

The same method of construction is used for each board, and to avoid being repetitious, the construction of number one will be detailed here.

Free use is made of "circuit test pins (Cat No H5590) and are shown thus * on the circuit diagram. They are used for transistor connections, power supply feed, all buffer inputs and outputs (used or not) signal in and out for each IC, and other points as and when required.

Sockets are provided for all DIL integrated circuits and are the first items soldered into the boards. Next comes the supply lines, positive along the top whilst the negative runs along the bottom. Solder lugs are organised so that their holes coincide with the board mounting holes and are positioned so that they may be soldered to the earth pins.

Now run the IC earth leads, using bare tinned copper wire and/or any convenient tracks. Likewise, the inter-connection links, not forgetting the Vcc (positive) supply, and then followed by the inter-chip wiring using insulated wire. Wherever possible wiring is run along the upper surface and soldered underneath, or to circuit pins.

Earth the unused buffer inputs (***not outputs***), fit resistors and capacitors.

Before going further, inspect your work under a strong light. Remove possible shorts and resolder any dubious joints. When completely satisfied, wire in transistors and the 78LO5 regulator.

The IC pin spacing must now be adjusted to suit that of the socket. This is done as follows:

Hold the chip firmly using both hands, press down firmly against the bench top, and tilt the IC slightly. The opposite side is treated the same way. *Carefully does it* are the operative words here. Better to have two or three attempts than to finish with mangled pins.

Now carefully insert the chips into their sockets, making sure that you have them polarised correctly. The board is now complete and hopefully without errors or omissions. If confident, mount it into its appointed space on the chassis. Maybe it would be prudent to make one final check? It is surprising how simple errors creep in when one is in too much of a hurry. My advice is not to hurry as there is always another day!

The remaining boards are handled in a similar manner, complete but do not, at this stage, mount board four.

Run the 12 volt supply to each board in turn, followed by the few inter- board connections and then the four wires to the "Lock" indicator. Do not fit, at this time, any switches, etc except the power ON/OFF one. Their absence, together with all of the associated wiring, gives a lot more "elbow room" during preliminary testing.

TRIAL RUN

Run five temporary connections from the summing gate to the programmable divider:

1. IC15 (74C30) to IC8 (4017) pin no 2 = 1 (1 MHz)
2. 74C30 to IC9 (4017) pin no 1 = 5 (100 kHz)
3. 74C30 to IC10 (4017) pin no 3 = 0 (10 kHz)
4. 74C30 to IC11 (4017) pin no 3 = 0 (1 kHz)
5. 74C30 to IC12 (4017) pin no 1 = 5 (100 Hz)

Switch on and check that the correct Vcc appears at the right places. If the clock oscillator has not yet been set, do so now using your counter or the station receiver tuned to WWV, etc.

Move the counter to the buffer output pin (No 4) of the 4049, on Board One. Using an insulated trimming tool, adjust the VCO trimmer (TC1) from minimum towards maximum. If all is well, the counter display will suddenly jump from random counts to a rock steady 1.5005 MHz. The "Lock" indicator should now glow steadily. Nil or pulsing display means zero or only partial lock.

FAULT FINDING

Failure to lock indicates a wiring error or a faulty component. Fault finding with a CRO is relatively easy, however, for those without a CRO it will be much more difficult. Don't despair as many checks may be made using your receiver, and/or multi-meter.

Use your receiver to verify that the clock oscillator is running and then that the divider board is producing the correct frequencies. If this is happening Boards Three and Five are clear.

The programmable divider may be tested as follows:

A little extra wiring is required, all of which is temporary and is merely to enable one to assess the operation of this board. Disconnect the reset line and tie to 0V. Re-route the divider input to the TR1 collector and then connect the level converter (TR1) to the 1 MHz output of Board Three. A capacitor and diode detector will allow the use of the multi-meter as a signal tracer. If you are satisfied that Board Three is counting then the fault must be either in Board One or the inter-board wiring. Remove the offending board from the unit and arm yourself with a copy of the circuit. Remove all ICs. Now check for unintentional shorts between every chip connection. Then test the circuit through, step by step. Ensure that every earth shown on the diagram has been made. Some of the ICs use multiple earths and will not operate correctly if one has been missed.

DECADE SWITCHES

Having arrived at the stage of having the unit "up and running," attention is now directed to the installation of the five decade frequency selector switches. They are fitted and tested, one at a time. Due to the limited space inside the case, it was found easier to pre-wire them before assembly onto the front panel. The use of different coloured wire makes for easier sorting at the board end. The author used wire which matched the standard resistor code. Rainbow flat cable is an easy way to obtain such an array of colours.

Commence at the 100 Hz end and fit the switch. Remove the temporary wire No 5, then connect the 10 wires to their assigned places. Ten go to IC12 (4017) and the 11th goes to pin 2 of the summing gate.

Verify your work by connecting the counter and rotate the switch from zero through to nine. The output frequency should increment from 1.5000 to 15009 Hz in 100 Hz steps.

The process is then repeated for the remaining four switches. Note that the X 1000 is a two-pole, four-position type.

Section "a" is wired to pins 3, 2, 4 and 7 of IC8, corresponding with frequencies of zero, one, two and three megahertz. The "B" pole is used to switch-in extra capacity to the VCO circuitry to allow operation down to 100 Hz in the "0" MHz position.

Considerable jitter creeps in at the lower frequencies and is reduced by introducing an extra 1.5 nF capacitor via the "LF" switch.

FINAL ADJUSTMENT

This may be accomplished using the station receiver, however, a counter and CRO will make the exercise a little easier.

Proceed as follows:

HIGH FREQUENCY LIMIT

1. Turn TC1 to maximum C.
2. Set SW1 to "3" and switches 2 through 5 to "0." (The "Lock Indicator" will most likely not be "On" or it may flicker).
3. Tune the receiver to 3.0 MHz.
4. Slowly tune TC1 towards minimum. A point will be reached where a strong signal will suddenly appear on the receiver and the "Lock" will settle to a steady glow.
5. Leave SW1 at "3" and set SW2 to "5" (3.5 MHz).
6. Retune the receiver to 3.5 MHz and repeat step 4.
7. Repeat at 100 kHz intervals until maximum lockable frequency is reached.

The author's prototype struggled up to 3.9990 MHz, albeit with an excessive locking time.

MID-RANGE FREQUENCIES

8. Turn SW1 to "1" and all others to zero. Check for lock and 1 MHz signal on your receiver.
9. If okay, rotate other switches to 9999 and verify frequency. "CX" will need to be reduced if unable to reach 1.9999 MHz.

LOW RANGE FREQUENCIES

10. Set SW1 at "0" and "LF" to OFF. Use "Counter" to check output frequency at all switch positions.
11. Connect CRO to output. "Jitter" should be apparent on the waveform at frequencies below approximately 100 kHz.
12. Switch "LF" on. The "Jitter" should now stop. If still evident, increase the 1.5 nF capacitor slightly. Do not use more "C" than required.

FUTURE PLANS

These include substituting a XR2206 chip in lieu of the 4046s VCO section. The idea here is that sine, square and triangular waveforms would then be obtainable.

Then, of course, a low impedance emitter follower feeding into a calibrated switchable attenuator, and maybe an output meter could be considered.

Alternatively, one could stay with the square wave only configuration and use a 74 HC 4046. This IC utilises 3.5 μ silicon gate ρ well technology to obtain high frequency operation. It is specified to give a typical frequency of 18 MHz with a VCC of six volts.

Heavens, quickly secure the lid, before any more possible features (and more work) are thought of.

A full Parts List has not been prepared for this project, however most of the hardware items come from *Dick Smith Electronics* stores. These include the power transformer, case, sockets, circuit pins, DIL boards, knobs and toggle switches. The semi-conductors were purchased from *Rod Irving Electronics*. Minor components were obtained from various other suppliers, including the "good-old Junk Box."

Thanks are extended to Mrs B Brown for typing this article.

References:
1. 10 MHz Temperature Controlled Oscillator, *Amateur Radio*, September and October 1986.

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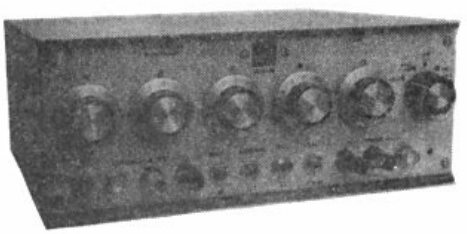
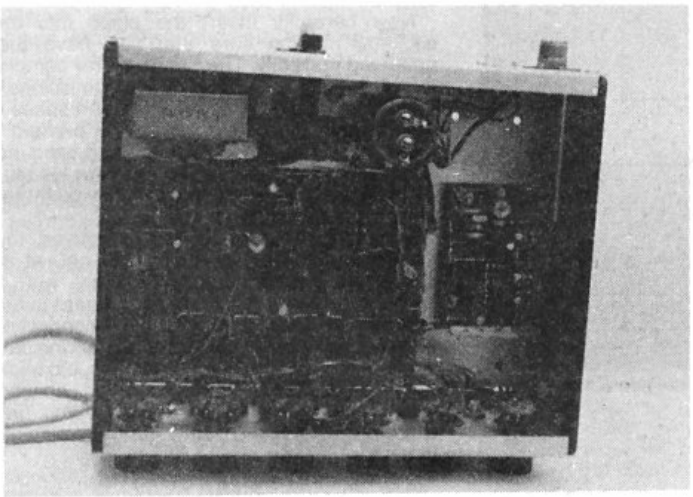
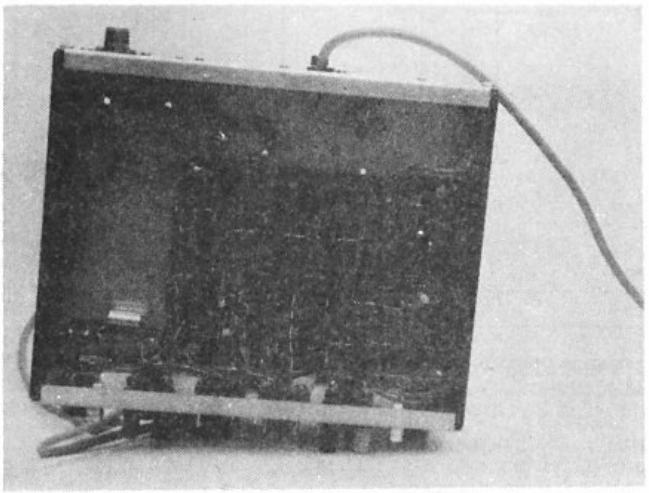




Internal View from top.



Internal View from bottom.

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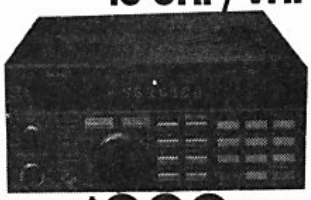

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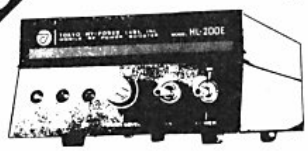

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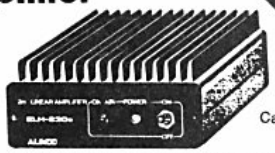

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Equipment Review

ICOM IC12AT 1296 MHz FM HAND-HELD TRANSCEIVER

By Gil Sones VK3AUI
In collaboration with:
Kevin Phillips VK3AUQ
Lionel Curling VK3NM
Peter Ford VK3YTB

Ten years ago, hand-held transceivers had established their place in amateur radio. They had limited channel capacity and their features were limited.

Icom have now released a 1296 MHz hand-held radio with all the features of their 144 MHz and 432 MHz hand-held radios. Just to have produced such a transceiver is quite an achievement. The performance of the transceiver is better than that of many fixed stations of 10 years ago. Hand-held radios have certainly evolved during the last 10 years.

The IC12 is a very highly developed hand-held transceiver. None of the features of Icom's other hand-helds are lacking. The IC12 comes with a complete range of memories, scanning, priority, call channel, tones and repeater operation.

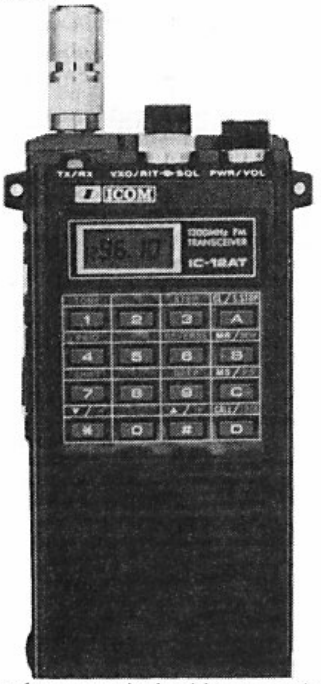
Usage of the 1296 MHz band presents a problem in testing equipment on air. However, with two units to test and the assistance of home stations, the capabilities of the IC12AT were assessed.

When first delivered, there were some qualms about the safety of use of the hand-helds. This is not peculiar to these hand-helds, but applies to any hand-held transceiver. The critical factors are the power radiated, the length of the aerial, and the distance from the operator. A higher powered hand-held with a short aerial can approach the limits for exposure to electromagnetic radiation.

Calculation of the likely electromagnetic radiation from the IC12AT indicated that it would be well below 10 mW per square centimetre under normal operation. This was later confirmed by direct measurement using an RF Radiation Monitor.

Performance measurements at 1296 MHz require relatively sophisticated test equipment. In order to obtain the figures shown, the two hand-held radios were passed to Kevin VK3AUQ. The results are shown in Figure 1.

Below: Close-up view of Key-pad and LCD Display.



The performance obtained is very satisfactory and is remarkable from such a small radio. The transceivers were operated from battery packs, so the performance is the actual performance obtained in use.

Figure 1 — Receiver Sensitivity.

ICOM IC-12AT	S/N 01097			S/N 01098		
FREQUENCY	1260	1280	1299	1260	1280	1299
Mute opens	.08 μV	.07 μV	.08 μV	.07 μV	.06 μV	.07 μV
SINAD 12 dB	.23 μV	.19 μV	.25 μV	.25 μV	.21 μV	.25 μV
Receiver Audio O/P		>500 mW			>500 mW	
Distortion at 500 mW		7.6%			5.3%	
Distortion at 50 mW		6.8%			3.3%	
Receiver Current Muted		82 mA			80 mA	
Receiver Current Full Audio		230 mA			230 mA	
Transmit O/P Power High	900 mW	830 mW	890 mW	690 mW	670 mW	730 mW
Transmit O/P Power Low	91 mW	86 mW	74 mW	92 mW	87 mW	84 mW
Deviation		4.5 kHz			4.8 kHz	
Spurii Only Spurii		2nd Harmonic			2nd Harmonic	
			-50 dB			-56 dB
Frequency (Ambient 20 degrees Celsius)		1.8 kHz low			-1.1 kHz	
Transmit Current High	1.1 A	960 mA	870 mA	1.01 A	940 mA	885 mA
Transmit Current Low	490 mA	435	376	500 mA	450 mA	410 mA
FREQUENCY	1260	1280	1299	1260	1280	1299
ICOM IC-12AT	S/N 01097			S/N 01098		

Battery consumption done with 12 volts external and battery pack removed.

Field tests were carried out with the assistance of Lionel VK3NM and Peter VK3YTB. Home stations also assisted with tests. Les VK3ZBJ, provided contacts to various sites in Melbourne's eastern suburbs over distances of 35 to 40 km.

The IC12AT was very simple to operate. Signals were very clear with excellent audio quality on both transmission and reception. Flutter was greater than on two metres, but did not detract from reception.

Penetration of the signals through buildings, vegetation and hills was not as good as at two-metres. However, this was tested to extremes. The coverage overall was particularly good. A well sited home station gave excellent coverage to a mobile hand-held. Similarly, contacts of around eight to 10 km were maintained, hand-held to hand-held with suitable suburban terrain. Both ends of this contact were in elevated, but locally obstructed conditions.

A repeater on 1296 MHz would really make the IC12AT shine! Excellent coverage with small aerials would be obtained.

Battery drain is somewhat greater due to the circuitry which must be used. A spare battery pack would be a good acquisition. The batteries are NiCad and a suitable charger is supplied.

Another alternative is to use a spare pack of alkaline cells. This can usually be replenished without the waiting time for NiCads to charge.

Overall, the IC12AT is an excellent hand-held transceiver. Quite surprisingly good results were obtained.

The concept would have been an impossible dream, 20 years ago. Only 10 years ago, it would have been still a pipe dream. Today the IC12AT is an achievement Icom can be proud of.

AT A GLANCE EVALUATION OF THE ICOM IC12AT HAND-HELD TRANSCEIVER

Serial Nos 01097 and 01098

APPEARANCE

Packaging
- ***Single carton with foam insert. Individual packaging of accessories and transceiver inside.

Weight and Size
- ***Not the lightest hand-held, but very acceptable.

External Finish
- ****Very well finished combination of metal and plastic.

Construction Quality
- ****Excellent.

FRONT PANEL

Location of Controls
- ****A very neat layout. Well thought out.

Size of Controls
- **Pretty hard to make them bigger.

Labelling
- ****Excellent.

LCD Display
- ****Excellent, with status indicators and light if needed.

RECEIVER OPERATION

Sensitivity
- ****Excellent.

Received Audio
- ****Excellent.

Memories
- ***Ten, with priority, call frequency and repeater offset.

S-Meter
- ***Bar-graph for comparative use.

TRANSMITTER OPERATION

Power Output
- ***Very good considering size, the frequency and the battery operation.

Transmit Audio
- ****Excellent.

Output Indicator
- ***Bar-Graph of relative output.

Instruction Manual
- ***Comprehensive manual covering all aspects of operation. Circuit provided.

Overall Rating
- ****An excellent hand-held radio, which is even more remarkable considering the operating frequency.

RATING CODE

* Poor; ** Satisfactory; *** Very Good; **** Excellent.

ar

Packet radio is unique to amateur radio. I read in a recent newspaper article that amateur radio operators were generally considered to be a group very "tolerant of eccentrics," presumably because the hobby is generally solitary. Until packet radio came along, amateur radio consisted mostly of interaction between man and his radio. If you could not get your voice heard or message through with 50 watts, well, crank up the power or tune the antenna. There was very little co-operation required between amateurs; and when it was, a few could (and can) mess up everything.

Packet changes all of that. Without a well-designed communications protocol, we could not recognise anything coming from somewhere else. Without a lot of co-operation and goodwill, our very fragile network of digipeaters will simply stop working. That is why the extension of digipeaters to the western slope and on to Utah, and theoretically to California, is such a remarkable feat. California has W6AMT, with 12 or so digipeaters bearing his call sign, to form the backbone of WESTNET. The east coast has many amateurs who can get together to buy and put up a digi here and there.

We have some wonderful sites, but darned few people and even less money; but with what we have, we've built a successful Level 2 link between Denver and Salt Lake City. Now that the sites are there, and people are used to the strange buzzing noises they sometimes hear on 145.010 MHz, we will be ready when true Level 3 networking comes, with higher speeds and better channel utilisation. Until that happens, though, we are stuck with what we have got, which is a link that works — sometimes. Here is some information on the Colorado portion of the link, and to the extent I know about it, the people who helped put the digipeaters up!

N0BRI-1 is the first link in the chain. It is located on Santoy Mountain, near Kremmeling, several metres from the Kremmeling VOR, a well-known aircraft navigational aid. Since it is located approximately 75 miles (120 km) due west of Boulder, it ought to be easy to hit it — but the continental divide is in the way! However, K0ZCO (and several others) in Denver, KE6LT in Boulder and W0HJX in Greeley have been able to work this digipeater consistently. The digi was installed earlier this year by N0BRI, whose name in the call book is Louis, but everyone calls him Sunshine. He lives in Eagle, and is an electrician in Vail. The digipeater runs 25 watts and uses a Kantronics TNC. Ironically, Sunshine cannot work his digipeater from his house. It also does not hit Vail, and Sunshine and Phil W0KEA, will probably install another digipeater on Bellyache Ridge, between Eagle and Vail so that Phil can use packet. The Eagle/Vail amateurs have been very active in the use of packet to exchange golf scores during the Annual Jerry Ford Golf Tournament.

N0BRI-1 has also proven popular with vacationers, and given the terrain, it should be able to connect to N0CCZ-1, which is just over 100 miles (160 km) to the south-east. Some of the links in Utah are over 200 miles (320 km) and they seem to work well. However, no one has thus far been able to get from Santoy to Colorado Springs directly.

About 59 miles (94 km) south-west of N0BRI-1 is K0GUZ-1, which is located on Sunlight Peak, which in turn is at 10 500 feet about 12 miles (19 km) south-west of Glenwood Springs. This digi was installed in May 1985, so it has the distinction of being the oldest one on the western slope. It was a joint venture between a lawyer, Bob KI0G, and the county judge, Steve K0GUZ, and a computer consultant and instructor, Bob K9MWM. The digi is in the same building as the K0CL 07/67 repeater, and consists of an old Motorola Moxy single-channel rig running 18 watts or so, and a GLB TNC. The combination has proven extraordinarily reliable, which is a good thing since the site is not accessible during the winter except on snow shoes or by snow cat.

There are several active packet stations served by this digi, including K0GUZ and Mel W0HLD in Rifle, KI0G and K9MWM in Glenwood Springs; Neal K0TIV in Carbondale; and Rob K0YBX in Aspen.

The next digipeater is W0RRZ-1, Grand Junction, located on Black Ridge, just west of Colorado National Monument. W0RRZ-1 is 79 miles (136 km) from Sunlight, but the path is unusually excellent —except during the hot summer when it almost seems as if the shimmering heat waves distort the signals so much that it is not entirely reliable. The digi has been installed be several people who have formed a western slope club; among them were, KA0WCZ, WB0ECV, KA0SLV, KC0GU, W0MTK, WB0PDU, and KB0NF. KB0SW, in nearby Collbran can also use the digi. Most of these amateurs are actively engaged in computer engineering or are employed in communications, working for Mountain Bell, GTE Spacenet or one of the local television stations.

Earl KA0WCZ, has succeeded at the monumental task of writing, from scratch, a W0RLI/WA7MBL bulletin board system in Basic to run on his S-100 bus system. The BBS, KA0WCZ-1, has now been on the air for several months, and most of the bugs have been worked out of it. It will automatically receive and forward messages to the eastern slope and send and receive files (within reason) and monitor the frequency. . .just as the others will do.

Located on Blue Mountain, near Dinosaur, CO, is the newest digi, WB7WAB-1, alias BLU. BLU is located 95 miles (152 km) north-west of K0GUZ-1 and 77 miles (123 km) due north of W0RRZ-1. It should be possible to hit it reliably from either one. It is the first of the digis in the chain installed by the "Utah Group," which has been actively installing digipeaters fanning out from Salt Lake City. First, they reached Los Angeles, now they are going north to Boise, east to Colorado and west to Reno, Nevada.

The only person to be reached on this digi is Gary NB7B, who has had a packet rig in Vernal, Utah for 18 months and nobody to talk to.

Then, there is another digi in central Utah, 25 miles (40 km) north-west of Price on Ford Ridge, near Scofield Reservoir. It is KD7YG-1, alias FORD. This provides a reliable link to Snowbird, a mountain-with-ski-resort located at 11 000 feet, near Salt Lake City. The Snowbird digi is KD7YK-2.

From KD7YK-2, I have worked the WA7UZO bulletin board; WA7YAZ, KA7WAG and N7BHC, all in the greater Salt Lake area. KE6LT and W0HJX, among others, have at least managed to connect to Salt Lake City from the Denver/Boulder/Greeley areas using these paths (via N0BRI-1, K0GUZ-1, BLU, FORD, KD7YK-2) but the connection is not very reliable.

From Salt Lake City you can theoretically link south of Provo, then to Cedar City (a leap of nearly 200 miles (320 km); Las Vegas and then Los Angeles. That is the theory, but in practice it is somewhat different: nobody has been able to do it so far!

Everyone keeps repeating it: the 145.010 MHz digipeaters were never meant to handle long distance networking. However, assuming that everything is working and everyone co-operates to avoid hogging the frequencies, they do a pretty good job.

—Written by K0GUZ in the *RMPRA > PACKET* and taken from *Gateway, The ARRL Packet-Radio Newsletter* Vol 3, No 4

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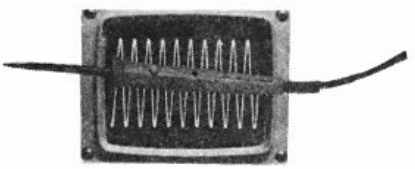

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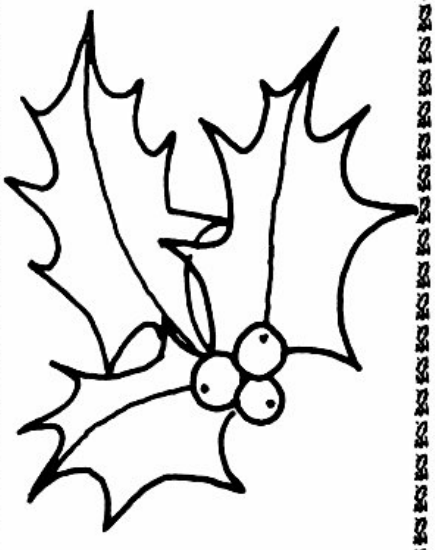


On behalf of the Advertisers, we wish all Readers

SEASONS GREETINGS

VHF UHF — an expanding world

Eric Jamieson VK5LP
1 Quinns Road, Forreston, SA. 5233

All times are Universal Co-ordinated Time and indicated as UTC

AMATEUR BANDS BEACONS

FREQUENCY	CALL SIGN	LOCATION
50.010	JA2IGY	*Mie*
50.060	KH6EQI	*Honolulu*
50.075	VS6SIX	*Hong Kong*
50.109	JD1YAA	*Minami Tori-shima*
52.013	P29BPL	*Loloata Island*
52.020	FK8AB	*Noumea*
52.100	ZK2SIX	*Niue*
52.150	VK0SJ	*Macquarie Island (Keyer)*
52.200	VK8VF	*Darwin*
52.250	ZL2VHM	*Manawatu*
52.310	ZL3MHF	*Hornby*
52.320	VK6RTT	*Wickham*[1]
52.325	VK2RHV	*Newcastle*
52.350	VK6RTU	*Kalgoorlie*
52.370	VK7RST	*Hobart*
52.420	VK2RSY	*Sydney*
52.425	VK2RGB	*Gunnedah*
52.440	VK4RTL	*Townsville*
52.450	VK5VF	*Mount Lofty*
52.460	VK6RPH	*Perth*
52.465	VK6RTW	*Albany*
52.470	VK7RNT	*Launceston*
52.485	VK8RAS	*Alice Springs*
144.019	VK6RBS	*Busselton*
144.400	VK4RBB	*Mount Mowbullan*
144.410	VK1RCC	*Canberra*
144.420	VK2RSY	*Sydney*
144.430	VK3RTG	*Glen Waverley*
144.465	VK6RTW	*Albany*
144.480	VK8VF	*Darwin*
144.485	VK8RAS	*Alice Springs*
144.550	VK5RSE	*Mount Gambier*
144.565	VK6RPB	*Port Hedland*
144.600	VK6RTT	*Wickham*[1]
144.800	VK5VF	*Mount Lofty*
144.950	VK2RCW	*Sydney*
145.000	VK6RPH	*Perth*
432.057	VK6RBS	*Busselton*
432.160	VK6RPR	*Nedlands*
432.410	VK6RTT	*Wickham*[1]
432.420	VK2RSY	*Sydney*
432.440	VK4RBB	*Brisbane*
432.450	VK3RAI	*MacLeod, Melbourne*[2]
432.535	VK3RMB	*Mount Buninyong*
432.540	VK4RAR	*Rockhampton*
1296.171	VK6RBS	*Busselton*
1296.420	VK2RSY	*Sydney*
1296.480	VK6RPR	*Nedlands*
10300.000	VK6RVF	*Roleystone*

1 Correction to location — my original report last April was correct. A note in the *North West Amateur Radio Society Newsletter* for October 1986, which says about the location... "All was fine until August 1986, when the WA VHF Group got in on the act and told everyone the beacons were now at Port Samson (Karratha), that is pretty close I suppose, only 60 or so kilometres apart. Then comes September AR and it was in Karratha!" The correction has been noted and the listing changed as from this issue. Will the WA VHF Group also please note for their list. . .VK5LP.

2 A further note from Ian VK3AQU, advises the need to correct the frequency of his 70 cm beacon from 432.475 to 432.450 MHz. This has been duly changed this month, also. Plans are in hand to raise the power level from the present one watt to the maximum of seven watts as allowed under his licence.

THE NORTH-WEST

From the *North West Amateur Radio Society Newsletter* comes the news of some exciting two metre contacts. On September 10, 1986, from 1200 to 1255 and on September 11, around 1545, contact was established between Dougall VK4KUY/6, on Koolan Island and the Darwin Channel 8 Repeater and stations worked included VK8s ZWM, LM, DI, ZED, PC, KJJ, and TA. Dougall made the contacts with 30 watts to a nine element Yagi. The distance is about 900 km. This appears to be the first time such contacts have eventuated.

Also a first was the two-way contact between Brian VK6AIH, in Port Hedland and Ron VK6UF, on Koolan Island on two metres, the distance being about 750 km. Contacts with Ron should be easier now that he has lifted his power to 200 watts.

Repeater VK6RCA, at Carnarvon is operational with 146.075 input and 146.675 MHz output and is being looked after by Jim VK6CA. Tests were to be carried out in October from the Carnarvon Lighthouse, which is a tower more than 30 metres high, right on the coast and, if successful, should suit ducting up and down the coast.

A new operator on six metres in Port Hedland in Peter VK6BB, who has 100 watts to stacked Yagis and is keen to see the Es season start. Perhaps he will not have to wait too long as Dave VK6YA, had a short contact with JH8MQZ/5 on 52.050 at 0830 on September 12. The JA also reported hearing the VK6RTT beacon quite well.

It is good to see the measure of activity taking place in the north-west, as area nicely situated for contacts to Indonesia, when conditions permit. It is noted that regular use is being made of the various repeaters to give indications of ducting.

It is of interest to note that the Newsletter is sent to 29 amateur operators in the area above Geraldton. How many are actually operating on VHF is not known, but it does indicate an area of considerable amateur interest and VHF operating does seem to be on the increase there.

THE BRAID-BREAKER

From the same newsletter is some information said to assist in curing the ills of television and VCR interference. The source of information is from the *RSGB Television Interference Manual* and the diagram of the "Faraday Double Loop TV Receiver Filter" is shown herewith and may assist those who are being troubled.

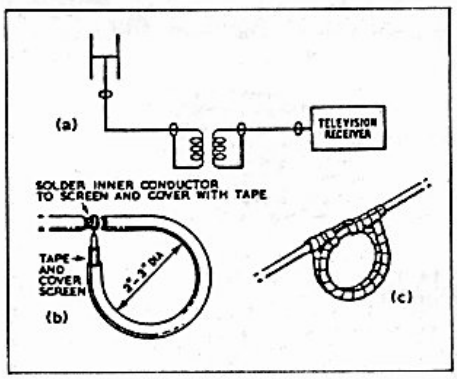


Figure 8.4 — Faraday double loop TV receiver filter. (a) Basic arrangement of filter; (b) detail of one loop; (c) two identical loops are put together, taking care to insulate all wires/screens and taped or laced firmly.

EME ACTIVITIES

Doug VK3UM, advises conditions have not been too good lately but the following have been some of his random contacts: 26/7 — 1345 UTC N4GJV received 43 sent 45; 2245 SM4IVE 349 339; 2307 DF3AU 459 459; 2330 DL9KR 559 449.

On 7/9 at 0730, ZS6JT 0 reports both ways despite the 30 foot (9m) dish at the other end, conditions were just so poor. 26/9 2300 OE9HHV M reports; 2330 SM7GEP 0 reports; 27/9 0000 DK0NA 0 reports; 0020 DF3RU 339 339; 0030 HB9SV 439 439.

Compounding problems in the VK3UM shack was a king-size flame-out of the 4CX250B linear with both valves ruined. This occurred whilst Roger VK5NY, was making a State Visit, so naturally he receives the blame! VK5LP sent over a parcel of 4CX250Bs which hopefully will get Doug back on the air.

NEW ANTENNAS AT DROUIN

David VK3AUU, has shifted QTH and is now located at Drouin South and is 400 feet (121m) ASL. He reports: "I have just finished building a couple of new antennas. The six metre one is nine elements on a 36.5 feet by two inch boom and the two metre one is 19 elements on a 38.5 feet by 1⅝ inch boom. As well as those, I also have 33 elements on a 27 feet tapered boom for 70 cm. All are basically DL6WU antennas with 1:1 folded dipoles and 4:1 halfwave baluns, but the element lengths are calculated using an algorithm which I have produced from a set of DL6WU figures. The driven elements are 1:1 folded dipoles which give 200 ohms at the feed-point.

"The two metre Yagi is virtually matched across the whole band and the gain is estimated at 16.8 dBd from the beamwidth of 23 degrees. I can hear in excess of 7 dB of noise from Sagittarius A with a 3SK97 GaAsFET preamplifier mounted where the antenna joins the mast. The Mount Gambier Beacon is now there all the time, even with Trevor's (new) antenna and the Canberra Beacon fades in and out of the noise most of the time, unaided by passing aeroplanes. Ian VK1BG, can always hear my CW and, in fact, I have worked VK1 or VK2 on 11 days out of 16 since the new antenna went up. On 29/9, at 4.30 am local time, I copied Chris VK5MC, back off the moon quite well, which I could not do with an 18 feet Yagi. Tests on the local beacon indicate about a 10 dB improvement in received signals with the new beam about 10 feet higher than the other one and the preamplifier a bit closer to the antenna. I hope to put up four of these monsters, stacked 16 feet apart, in the autumn.

"The six metre version is cut for 50.100 MHz and it does seem to do okay at that frequency but does not do very well at 52 MHz, but I have not doe any measurements on it yet." (Probably would have been better cut for 51 MHz when it would have probably been very reasonable over about 2.500 MHz. My eight-over-eight system does not rise above 1.4 to 1 from 50.000 to 52.600. . .5LP).

"The 70 cm antenna gave trouble in matching and finished up with a T-match and a universal matching stub into a 4:1 balun. It has a beam width of about 17 degrees, but that was measured on sun noise which only gets up to 5 dB, so is not accurate. However, the sun noise is above 4.5 dB from 430 to 440 MHz with a 3SK97 on the boom about 18 inches from the feed. I have heard K2UYH, but cannot hear VK3UM off the moon. I have a 39 feet long 49 element antenna partly constructed, just to see how far you can go, but will probably settle for four by 19.5 feet antennas.

"I have also built a 26 feet high tilt-over tower on which the three Yagis will be mounted for this summer, 50 MHz at 26 feet, 432 at 32 feet and 144 at 40 feet. I have 150 watts on 50 and 144 and 80 watts on 432. I hope I can be one of the top Ross Hull stations this year, but, unlike a lot of others, my activity will not cease after the contest."

Thanks for the letter David, and now that you have retired we are looking forward to some very good signals out of Drouin, which is located about 92 km ESE of Melbourne.

WESTERN AUSTRALIA

I was pleased to receive a letter from Don VK6HK, which he said was a result of him being "named" in my column as one who should be contributing to the *DX Standings Column* and he comes up with a list commencing in 1951.

Some curiosities which Don lists are:

1 23/9/56 at 0252 KA2DS Japan CW 559 heard on 50 MHz. This was a very early record of Japanese reception in Western Australia. At this stage, 56 MHz was the only band allocated, 50 to 54 MHz having been resumed for the original television channel 1 (49 to 56 MHz). The operator was an American serviceman operating from Tachikawa and Don still has his card and letter of verification of the reception. Don asks; "Any earlier reports?"

2 12/4/82 0600 9VG58 from Singapore CW 549 on 50 MHz. This was the third harmonic of a commercial CW station operating in the 16 MHz band.

3 12/4/82 0601 VPS80 source unknown CW 579 on 50 MHz, also a harmonic from commercial HF.

Both these stations are of interest but not counted in his list.

Don also says "It was an interesting exercise digging in the old logs and cards for the odd detail. One has cards for the old WAS, Worked all ZL Districts, Worked all JA Call Areas in profusion, but not a lot of different countries. Congratulations to VK8GB/2BA/4ZJB etc. Their scores translate into a lot of operating application. Talking with VK6WD over the weekend and we agreed it is a good idea to record what has been workable over the years.

"Until recently, there has been a keen group of ATV operators on almost every day on 70 cm. I have participated but not for some time. The gear can run 100 watts peak sync out if required, although coverage around the city is surprisingly adequate with only 10 watts from the solid-state DSB mod/exciter. Best DX is about 100 km down the coast in tests with VK6KZ/P.

By the way, one of the former stalwarts of six metres activity, Andy VK6OX, has recently moved to Perth from Carnarvon and has been trying to sell his gear. Perhaps it is only his HF gear? ? ?" I sincerely hope so Don, it would be a pity to lose Andy from the VHF-ranks. . .5LP.

FIVE METRES — AGAIN

Last July, I published a letter from John VK5UL, referring to happenings on the old five metre band, plus his involvement in the early radar applications.

This letter created more than a little interest and several correspondents have commented on it in passing. However, Keith Heitsch VK4HK (formerly VK3HK), carried out his own research on early five metre operations and from the large amount of information sent me, including a photocopy of the relevant pages of his log book, I have put together the following for the interest of readers.

Keith originally lived at Mitcham, east of Melbourne, and the saga appears to have started with the return of the amateur bands after World War II and in 1946 quite a high degree of activity was taking place on 50 Mc/s (not MHz then!), and for many months before the summer period, Keith kept nightly scheds with Eric Thomas VK3ZL of Ballarat. Results were variable, sometimes they only just got through whilst at other times signals could be S4 or S5. They concluded the chances of working interstate were rather remote, but they would keep trying.

Keith had five metre equipment mounted in his private car, operating on 51.4 Mc/s, MCW and phone. On 30/11/1946, he went on to Mount Dandenong hoping that elevation might assist him to contact distances. He worked VK3MJ, VK3NW, VK3ABA and VK3GG, all during the afternoon. On his way home at 1705 local (all times for this purpose of this historic exercise will be local) he heard VK4ZU testing. Each time he put it by Keith called him but no answer, despite copying him 5x6. VK4ZU was on 52.1 for about one hour.

It did not take long for the news to get around Melbourne, so next day there were many stations calling CQ DX on 50 Mc/s. News came through on 40 metres that VK2WJ in Maroubra, New South Wales, was hearing VK3HK but no one else, frequency 51.3. His card says "Congratulations on first 50 Mc/s DX." Time was 1830. At 2012, Keith heard a station being either VK2FP or VK2FB at 4x4.

On 2/12/46, a lot of time was spent throughout the day calling CQ DX until finally, at 1830, VK2OC was called on sched in response to a telegram received earlier in the day saying; "Your six metre sigs received 7.15 pm yesterday please sched tonight 6.30 and 7 pm and listen 3583 kc/s for reply. . .VK2OC." No contacts resulted from the calls and the 80 metre link was too noisy and VK2OC was not heard. Lots of further DX calling took place during the next two days but only local contacts resulted.

Finally the barrier was broken. At 1900 on 5/12/46, VK3HK was called by VK2NO (Don) in Sydney on 50.4 Mc/s and a two-way contact resulted, Keith sending 5x8 and receiving 5x7, thus becoming his first interstate contact. At 1910 he called VK2AHF and worked him at 5x9; 1917 VK2WJ 5x9; 1925 VK4RY; 1945 VK4HR 5x9; 1955 VK4XG 5x6; 2003 VK4ZU 5x9; 2023 VK2AZ 5x7; 2035 VK2LZ 5x6; 2118 VK4HR 5x9 and 2230 VK3MJ 5x9.

The next occasion was on 9/12/46, when at 1910 VK4HR, was 5x9; 2000 VK4FB 5x6 and 2025 VK4AP 5x7; all around 50.7 to 50.9 Mc/s. A letter from M Tomkins at Bundaberg reported reception of VK3HK there from 7 to 9.30 pm at S3 to 7. Thus the signals were settling into the now familiar 1000 miles- plus optimum path for Sporadic E.

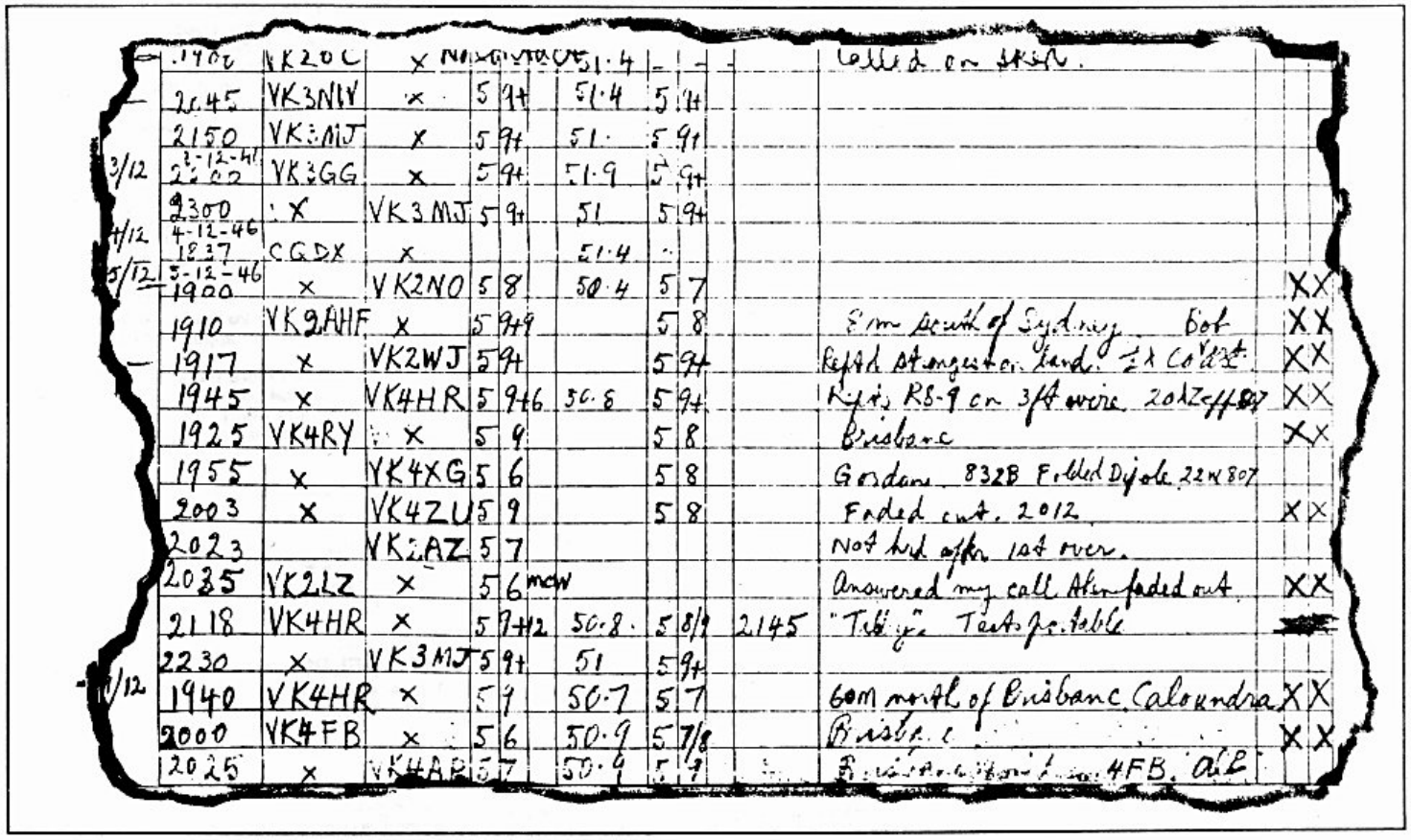
Referring to that first contact with VK2NO, this station sent a telegram to VK3NW in which Don said Keith's signals eventually rose to S9 +20 dB, so the band was probably just opening up at the time of the original contact. Keith VK4HK, is now asking is this contact between VK3HK and VK2NO was the first interstate contact in Australia on 50 Mc/s? That is a question I cannot answer, but there may be some reader who can help. It would be of historic interest to know when the first contact was made on that band, bearing in mind that other bands were also being tried at the same time; eg 112 Mc/s etc.

A copy of that all important section of the log of Keith VK3HK is included in this column and your attention is drawn to some of the comments in the "remarks" column. QSL cards are held for VK2NO, VK2WJ, VK2OC and VK4ZU.

LETTER FROM JAPAN

JA1VOK sent a letter dated 16/9 (just too late for last month), in which he says six metres opened to VK4 on 12/9 and 14/9 for the first time during their

A portion of the log of Keith VK3HK.



	1900	VK2OC	×	NIL		51·4				called on sked.	
	2045	VK3NW	×	5	9+	51·4	5	9+			
	2150	VK3MJ	×	5	9+	51·	5	9+			
3/12	2300 3-12-46	VK3GG	×	5	9+	51·9	5	9+			
4/12	2300 4-12-46	×	VK3MJ	5	9+	51	5	9+			
	1827	CGDX	×			51·4					
5/12	5-12-46 1900	×	VK2NO	5	8	50·4	5	7			XX
	1910	VK2AHF	×	5	9+9		5	8		5m South of Sydney Bot	XX
	1917	×	VK2WJ	5	9+		5	9+		Rptd strongest land. 2 1 Coast	XX
	1945	×	VK4HR	5	9+6	50·8	5	9+		Kyle RS-9 on 3/4 wire 20kz off	XX
	1925	VK4RY	×	5	9		5	8		Brisbane	XX
	1955	×	VK4XG	5	6		5	8		Gordon 832B Folded Dipole 22W 807	
	2003	×	VK4ZU	5	9		5	8		Faded out. 2012	XX
	2023		VK2AZ	5	7					Not hrd after 1st over.	
	2035	VK2LZ	×	5	6	mcw				Answered my call then faded out	XX
	2118	VK4HR	×	5	9+12	50·8	5	8/9	2145	"Tibijo Tests Jo. Table	
	2230	×	VK3MJ	5	9+	51	5	9+			
9/12	1940	VK4HR	×	5	9	50·7	5	7		60m north of Brisbane Caloundra	XX
	2000	VK4FB	×	5	6	50·9	5	7/8		Brisbane	XX
	2025	×	VK4AP	5	7	50·4	5	7		Brisbane with 4FB. QRL	

autumn. JE1TGN worked VK4KWX and VK4FXZ around 0810. The VK4s were also finding stations from JA1, JA2 and JA7.

JA1VOK worked VK6ZKG/4 in Cairns at 0750 on 14/9 at 5x7, later rising to 5x9+ with QSB. Later he heard VK4FXX. JE1BMJ and JF1PUW also worked VK6ZKG/4. Channel 0 television on 51.750 was 5x9+ in Japan for an hour from 0745.

Thanks for the letter Yoshi, certainly it pays to keep an ear on the band as one never knows when it will open.

DXPEDITION TO NIUE

By the time you read this, Nev VK4ZNC should be installed on the island of Niue, which is about 4300 km east of Sydney, as he was leaving on November 14. Information on this DXpedition was given in the October issue and your attention is drawn to this. It will not be a particularly easy six metre contact, but well worth trying. I have no information as to operating schedules or frequencies.

FROM BRISBANE

Angus VK4AGQ, together with his letter, sent a copy of his first QSL card from VK2ZAB for their first Sydney to Brisbane contact on 70 cm, which took place on 2/11/85 at 2014 UTC, on 432.300 MHz SSB with signals 5x3. This followed as a result of a suitable tropo opening and the completion of Gordon's new linear. Angus mentions it was not the first VK4 to Sydney as Bill VK4LC had already worked Gordon from Mount Tambourine.

Angus reports the regular scheds on Saturday and Sunday mornings with Gordon VK2ZAB, are always of interest. The shortness of time available to try and exchange a report on 432 at the peak of aircraft enhancement is intriguing compared to the rather longer periods with other types of contacts. Angus says it is rare for Gordon and he to hear one another for more than about 30 seconds on 70 cm, if you miss the 'peak' nothing is heard, so confirmed 70 cm contacts are rare. Lack of space on the antenna tower makes a high gain array difficult for Angus.

Angus continues with regular weekend scheds on two metres to Ted VK4JTW and Erroll VK4ZHL, at Rockhampton. Reports are usually exchanged and, at worst, carriers heard. 70 cm is more difficult, with only a few phone contacts. Liaison is on 3.620 MHz.

A further paragraph reads; "There is still the tendency as usual for all stations to automatically arrange with another to try SSB on 144.100 (why not some other?), often with the ubiquitous slim Jim or vertical beam incapable of hearing weak DX. QSOs at times become lengthy with others joining. I feel the following needs to be considered by all:

1 Where does another local station call CQ on SSB if 144.100 is occupied?
2 If there are horizontally polarised stations working on 144.100 and a mobile or vertically polarised station not hearing them calls CQ, what does a station do who can hear them all, but wishes to monitor for DX?
3 Are those working on 144.100 aware of whether there is a possibility of propagation at that time from ZL stations who call VK on this frequency?
4 Stations working on 144.100 can be a nuisance to stations 100 km or more away; eg stations working in Brisbane can interfere with stations on the Gold Coast, even if they are beaming south; and especially if the Gold Coast stations are listening for ZL.
5 There is less justification for working on the call frequency for lengthy periods than doing the same thing on repeaters.
6 If, despite the foregoing, it is deemed necessary or desirable at some time to be operating on 144.100, is a lengthy pause left by the station next in turn of value; better still, that station also calls QRZ with a further pause? (This allows both station's receivers to recover fully from the AGC).

"With the DX season nigh, I feel it might be time for a further 'plug' for the suggestion in January 1986 AR VHF notes, page 36, for all areas with an interested SSB group to all adopt 144.125 MHz as a local natter frequency, far enough from 144.100 to avoid splatter to and from nearby locals wishing to call/listen on 144.100. This would give everyone two frequencies to monitor for activity. If all on 144.125 MHz were enjoined to adopt procedures in six above, the occasional ZL, VK6 or VK8 breaker might find them, if these rare birds had no luck calling on 144.100 MHz!

"PS — 13/9, Saturday am, good conditions on two metres to VK2ZAB, also managed 4x1 contact on 70 cm, the first confirmed for some time. Gordon had only been able to erect one of his proposed four antennas for that band."

Thanks for the letter and your thoughts once more for the use of 144.100. As I said previously, there can be nothing wrong with the additional call frequency of 144.125 and I would certainly urge those operating on the band to try and remember to implement the idea, even if you only move there after starting on 144.100, that will be some help. Eventually, it might be accepted Australia-wide for local contacts in the main or at least a second chance for the DX station.

MOUNT GAMBIER BEACON

The SERG Newsletter from Mount Gambier carries a paragraph in the President's Report (Trevor VK5NC), to the effect that recently VK5RSE has had a coaxial change to the antenna system and a tune up. Trevor reports being advised of improved reception from listeners. I must say, the beacon has become more audible of late at the VK5LP establishment, but still not as good as it was before the water got into the original equipment. Trevor is suggesting an even better antenna system would help. Certainly if it can be returned to the situation where it is always there, even though weak, it will serve a purpose, now I find it is inaudible for 30 percent of the time.

OVERSEAS

Bill Tynan W3XO, of *The World Above 50 MHz* in October *QST* reports that the hoped for outstanding conditions which we enjoyed here in Australia last summer really did not eventuate in the same way in the Northern Hemisphere. Not that their Es season has been that poor, but neither could it be considered "one of the best!" They had the usual periods of ups and downs, culminating in a big opening on six and two metres on 10/5 and then seemed to trail off for a couple of weeks after their Six- Metre Sprint on 17/5. Substantial openings then occurred on 10/6 and 11/6, and these reached to 144 MHz. However, during their June VHF QSO Party, considerable excitement was aroused by the appearance of stations such as VP2MO, 8P6LL, 8P6JW, PJ2DEW, YV4UY, HC1BI as well as several KP4s and KP2s. Even OX3LX was worked by about 20 east coast stations. Nevertheless, the enormous Es conditions which we enjoyed over the greater part of Australia during the last week of December 1985, producing so many two metre contacts, certainly did not materialise in the US, so it will be very interesting to see if we are to be treated to a repeat performance this month.

With the increase in activity on six metres from England, trans-Atlantic contacts are becoming more plentiful. On 9/7 from 2232 to 2310, N4VA, who was camped-out on North Carolina's Outer Bank, worked seven Gs and one EI, with signals to S5. On 12/7 from Cape Cod, W2CAP/1 several; WA1OUB worked 22 Gs and K1JRW worked 15; on 25/7 HI8DAF was in for several hours, also the FY7THF and 6Y5RC beacons.

Still sounds like quite a good season to me, apparently there are plenty of six metre stations still around after the peak period of 1979-82, which augurs well for the future as they will probably be there in a few years when the next cycle should peak and we will be looking for F2 propagation again.

THE ROSS HULL CONTEST

I had a State Visit from Peter VK8ZLX, recently. He was on his way home after a visit to the eastern states during which trip he took around some suggestions I had noted down for the time when I visited Alice Springs, in regard to the Ross Hull Contest rules.

Apparently, the reception was rather cool in some places but at least they were something for the Contest Manager to think about and hopefully stimulate some more interest in the Contest. As these notes are being prepared ahead of the November issue of *Amateur Radio*, I am not aware of what rules may have been changed but in any case, I intend supporting the Contest as much as possible and I hope many others will do the same, especially to the point of sending in a log — that is very important!

As I said last month, my wife sees no need to accompany me for the period of my proposed portable operation from 26/12 to 1/1/87 inclusive, preferring to swat the flies from the comfort of the house rather than a caravan or tent in the summer! The operation will take place from Meningie, where I went last year, and will be on 52, 144 and 432 MHz. If the points scores for this year's Ross Hull give some advantage to long distance contacts, then the weaker signals often encountered from them will be worth pursuing.

GENERAL NEWS

Sometimes it is interesting to note the comments of six metre operators from other areas and here I refer to August 1986 *The Short Wave Magazine*, per favour of Steve VK5AIM: "Some observations of Ted Collins G4UPS, based on his long experience operating from Ascension Island as ZD8TC. He advocates the use of vertical antennas with a few radials for reception since much of the fading on six metres is simply due to polarisation changes, hence switching between the mandatory horizontal antenna for the transmitter and a vertical will iron-out this effect. He feels a two element Yagi is sufficient as longer ones with more elements tend to be too sharp 'for the inquisitive operator.' He is getting good results from his HQ-1 Minibeam."

The only comment I would like to make is that, a small antenna would be okay for run-of-the-mill Es to 1600 km, etc, but will miss out on really long haul contacts as we get occasionally here; eg double and triple hop and F2. With my eight-over-eight I do not seem to have much trouble getting people to answer my calls from ZL, FK and others!

Six metres has started to open up at various times, mainly to VK2 and VK4. On 10/10 I had a nice contact from 0810 with Lyn VK4ALM, at Rockhampton, with 5x9 signals. Lyn reported Mary VK4PZ, had worked Neil VK8ZCU, on 8/10 at 0330, also with 5x9 signals.

As this is the Christmas issue, I once again take this opportunity of saying "best wishes for Christmas and a happy year ahead" to all my readers. I thank those good people who write to me throughout the year setting out their experiences on VHF — without such continuing support the column would become very dull and I am indeed grateful. I thank the Editor of AR for his continuing support of my column and Bett and Ken McLachlan for their encouraging little memos which regularly turn up. Also, thanks to those who telephone information to me, it all helps.

With this issue, I commence my 18th year of writing these columns and there have certainly been many changes in the VHF/UHF world during that time. If I can last 20 years, perhaps I should prepare a summary of happenings over that time. *Interested?*

Closing with two more thoughts for the month: *Money does not talk these days — it just goes without saying* and *Many a live wire would be a dead one except for his connections.*

—73 The Voice in the Hills.

ATN HELPS SALVADORAN QUAKE

The Australian Traffic Net handled several hundred messages to El Salvador, in central America, after a 15 second earthquake hit on Friday, October 10.

ATN operator, Ken Richards VK3CKK, said there was a steady flow of third party traffic messages seeking information on the health and welfare of people in the disaster area.

How's DX?

Ken McLachlan VK3AH
Box 39, Mooroolbark, Vic. 3138

Well, another year has gone by very rapidly and the solar cycle should start to improve from now on. Perhaps Father Christmas cleaning the chimneys during his trip from the North Pole may have something to do with it.

The variance in the economics have made many astute people wary of how they will spend their hard-earned money and deposits in the bank, but equipment has reached an all-time high in sophistication and value. Build or buy, this is the question?

It is possible to build if one obtains all the parts before commencing, otherwise a project could be left on the shelf for a considerable period before completion, due to one or two components being out of stock and the necessity of awaiting a shipment from overseas. Then again, it may never be completed if the component is discontinued.

One will never be able to copy the sophistication of commercial equipment with home-brew, in volume of the project or performance, and the parts are generally dearer than the commercial unit, so it is a matter of choice. The excitement and satisfaction of building one's own equipment, apart from the frustration of getting it working, (which is part of the fun), cannot be described.

Happy Christmas and health and prosperity to one and all for 1987. Particular thanks are extended to all the contributors, who have made this column as comprehensive as it has been over the year and your participation will be appreciated by all readers again next year.

Next month we will look at how an amateur with extensive experience has viewed the hobby over the years. From playing records in the early pre-war days to being a first class net controller during the last decade. No clues, but many VKs will guess who the guest writer is, and will enjoy his experiences which span in excess of half a century.

DXCC FRESH-START UPDATE

Following my comments in previous columns, I wrote to John W4FRU, voicing my opinion and some comments I had received. Following is a News Release, written by John, Chairman of DXAC, which accompanied his reply to my letter.

NEWS RELEASE

"What is wrong with the DXCC? If what we hear is correct, the DXCC has changed from a gentleman's club to a club in which there is little or no trust. Gone are the days of Gus Browning's escapades and with them, an era of trust and good fellowship within the DX community. Enter Don Miller and we have had almost two decades of red tape, some questionable judgments in applying the DXCC rules and often, an unrealistic view of how the rest of the world should conduct its amateur radio affairs. Somewhere between the present and the past, there must be a middle ground that will yield the sort of DXCC program which will be fair to all and yet remain a test of one's skills and fortitude in the DX world.

"The DXCC is not a basket case and I wish to allay fears that the DXAC is committed to scraping the present program or, that it has an objective slanted towards a "fresh start." That option is just one of many which must be considered and is perhaps the one least likely to be proposed. The DXAC is committed to recommending changes to those parts of the rules which are the sources of most of the grievances with the DXCC program. Specifically, the country criteria is overdue for an update to reconcile the piece meal changes which have accrued over the years and to present it in language which is understandable to all amateurs; accreditation has and will remain a sticky issue until some realistic ground rules are established which recognise that all countries do not conduct their amateur radio affairs in the image of the USA. The DXAC has three subcommittees dedicated to studying these and other areas of the DXCC rules. Your inputs are essential. To date, some of you have recommended "gimmicks" which would diminish the difficulty of the awards program. If this is what the membership wants, let your voices be heard. In the meantime, the DXAC will proceed on the premise that the honour roll is not to be an "instant jackpot," but is reserved for those who have taken advantage of all DX opportunities to catch a new one. Whether it takes a year, five years, or a life time to reach the top of the awards program, is really not a consideration at this time.

"Paraphasing an overseas DXer's comment on our study: "The DXCC is recognised around the world as a prestigious club and its awards program is the criteria for all countries." We intend to keep it that way.

"The DXAC solicits your comments. Put them in writing — ARRL, Attn: DXAC, 225 Main Street, Newington, CT 06111."

John H Parrot Jnr W5FRU
Chairman, DXAC

TRAVELLING

The "Globetrotting" Colvins are planning another trip to Africa in the near future, for a duration of six months. One of their main objectives will be to try and operate from Malawi. Unfortunately, Mozambique was a very decisive "No-No" however, Reunion Island is an affirmative using the calls FR7/W6QL and FR7/W6KG. All DXers hope that the authorisations applied for come to fruition. Good luck Iris and Lloyd. All QSLs via YASME.

Another DXer, who is Africa-bound, is George Collins VE3FXT. George was due to commence a five months stint early last month after a trip to Jersey and Guernsey, where he used the calls GJ3WNE and GU3WNE respectively. He hoped to visit ZS3, ZS, A2, 7P, H5, 3D6, and V9. The visits are not necessarily in the order given, but George has been known to "pop-up" from some unusual places and at some unusual times! QSLs to George via VE3DPB, PO Box 137, Lynden, Ont. L0R 1T0. Canada.

BURMA

Burma, a densely populated country, even though its natural resources are immense, is unfortunately one of the poorest countries in the world. The hobby of amateur radio is lower than last on a list of priorities, if that is possible. The government have written to the IARU on numerous occasions, stating that the hobby is not tolerated for the present. Nevertheless, several Texas stations report working XZ2A, firstly on SSB and later on CW, in the 15 metre band.

Beam headings were correct and, at the time, the band was open to JA. The "operator" said to QSL to PO Box 1214, Rangoon, Burma.

It may be another *work first and worry later* situation or a complete hoax. Even if the operator is actually within the boundaries of the country, has he or can he obtain the certification that is acceptable to Don Search at the ARRL DXCC Desk. I am afraid it is another "ulcer" and more gray hairs for Don if claims are made by the stations XZ2A worked.

COMORO ISLANDS

Bill D68WB, and his wife Laura, are medical volunteers who have lived on the island for approximately seven years. Bill was born in Kenya, where his parents were associated with the African Inland Mission.

Doctor Bill, (as he is often called), and Laura, are still associated with the Mission although they work as professionals in a Moslem country with about 10 other westerners. Laura and Bill, a surgeon, look after a 50 bed hospital on the island of Grande Comore.

Prior to being in the Comoros they spent 11 years in Tanzania and 18 years in Kenya.

GORGONA ISLAND

Did you work Gorgona Island? Gorgona was a penal colony until 1985 and is locally known as *Devil's Island* by the prisoners. It was actuated under the call 5J0FRC, by the Federated Radio Clubs of Colombia, and was due to activated again during October.

If you contacted them on three bands you are entitled to a booklet about the Island. QSL to PO Box 050177, Medellin, Colombia. or PO Box 1767, Bogata, Colombia.

Other operations are planned for the future is you missed this one!

DO NOT QSL VIA JARL

QSLs to JJ1TZK, for various operations in the Pacific, will not reach him if sent via the bureau. He is not a member and, it is believed, they will be destroyed. Either send direct or save your cards.

REVILLA GIGEDO

Apparently an operation from XF4 is planned for March, next year, with an impressive list of operators. Quite a number of VKs require this one.

MONACO

I am not attempting to go into the award columnist's department, but those who have worked, or heard (two-way) three resident stations of Monaco since 1980 are eligible for an award.

Send details or a photocopy of three cards, not bearing the 3A0 or /3A prefix, or a signed statement by the national awards manager stating that he has sighted the cards, to 3A2LF. Include 10 IRCs or US$6. It is a worthy and attractive award and well worth the outlay for award hunters.

DX IN THE DOLDRUMS

No! One should have listened to 10 metres on September 28, around 1400 UTC. For a short time, Europeans were S9+ and from many different call areas. Were you lucky as I did not hear a VK being worked?

It pays to monitor all bands as the conditions are quite strange at the moment. It could be a good sign that the Solar Cycle is on an upward trend! Let us hope so as the "cupboard" has been slightly bare.

ANTARCTICA

A new group are due to exchange duties with the present crew in the near future. Call signs and names are unavailable at the time of preparing these notes but be listening on the bands for new VK0 calls emanating from the "Cold South." They are generally below 14.175 MHz and on other bands as conditions and work duties permit.

ABOUT FACE

Can you imagine the Falkland Islands rotating 180 degrees? No! It is not an April Fool Joke, but fact.

According to research at England's Oxford University, they have found that the Islands have done a complete half-turn over the last two-hundred-million years. Apparently it is a well-known phenomenon and even Australia is heading towards Asia. There is no need to panic as it is only a few centimetres per year — but it is occurring.

Evidently, at one time in history, India crashed into Asia and the land buckled, causing the highest mountain range on the Earth's surface, the Himalayas. India is still travelling northward, virtually burrowing under the area and, since the early settlement of man, it is estimated that the range, seldom conquered by man, has risen some 1500 metres!

So, when next you talk to someone on the west coast of the Falklands, think that the land where the QTH is now, was on the east side of the Island at one time!

YEMEN — MAYBE

It appears that plans are afoot to activate 4W. However, the unknowns are when? what call sign? and whether the correct documentation, acceptable to the ARRL, will be available?

According to Bob Winn W5KNE, Editor of *QRZ DX*, commercial communications equipment is

scheduled to be installed in Yemen and, at this juncture, the successful tenderer for the work is sending a technician to Yemen. Apparently, this technician has an amateur licence in his home country. Late news was that the operator was American and was due to leave for Yemen on October 8. The operator cautioned he would be very QRV with his business tasks for the first couple of weeks, at least.

The technician is confident of getting approval and, if so, will probably work 20 metres SSB on a split basis, having selected the frequencies of 14.183, 14.195 and 14.226 MHz.

It is a case of "wait and see." Unfortunately, due to the lead time of writing for publication, by the time you read this it may all be history or it may not have even commenced!

CHRISTMAS ISLAND — VK9XI

Ron ZL1AMO, was active from Christmas Island in late-September. As VK9XI is a club station, it would be prudent to QSL to ZL1AMO, either direct or via the bureau. There is going to be much confusion as to whether it was Ron's operation or the Club's, particularly by overseas stations who need this area. I wish the Federal QSL Manager, Neil VK6NE, the best of luck.

PITCAIRN ISLAND

Seems Pitcairn will have another amateur soon! Meralda Warren, sat for the examinations recently and is now awaiting a licence.

Congratulations Meralda, and that you are heard on the bands very soon.

Pitcairn Island is becoming quite amateur populated and could have the highest percentage of amateurs per resident-population in the world.

Meralda kindly sent me a book on Pitcairn which gives the history of the Island and a number of interesting facts about the area. It is an excellently produced edition, complete with colour cover, and would be a worthwhile addition to the library of anyone interested in the Island. Those interested in obtaining a copy may find out further details by writing to Meralda. Allow adequate time for the mail to be received and answered as the shipping traffic is infrequent.

TRACTOR MOBILE

Anyone hearing a station signing VK4FUE/TM would be curious. It has happened. It is a new one to me although I have worked /EM (Equestrian Mobile); /PM (Pedestrian Mobile); /TM (Train Mobile); over the years.

VK4FUE is in the sugar-cane area of Queensland and, as he is harvesting, operates /TM. Perhaps OM, you may care to forward a photograph and story for the magazine — it would be of interest to all, I am sure.

SICK LIST

Three well-known DXers have, unfortunately, been hospitalised over the last few months. Arthur VK3UX, John VK3JF and Col VK3WQ, have had their spell of being cared for by the nursing staff of three major Melbourne hospitals. All DXers wish this trio well and a speedy recovery.

GOUGH ISLAND

Two operators! Wow, how about that! Well, it is not as good as it sounds because ZD9CL (QSL via ZS6AEN) was only active for eight weeks. But, don't despair as ZD6CK will be operational for two years. Good luck and if in doubt, follow the ANZA Net, capably MCed by Percy VK3PC, for updates on this rare location. The Net is on both 15 and 20 metres, as conditions permit. Newcomers are more than welcomed by Percy.

NO TIME, BUT STILL OPERATES

A note from Joy VK2EBX, intimates that she has little time to operate, but she picked up a few nice ones over the last few weeks.

One was GB6OC, operational as a special events station from Ashton University, Birmingham.

On 20 metres, the outstanding ones have been KB6CLL, KL7JA and AH9AC, with quite a few Pacific Island licensees and a few Ws.

It was also lucrative on 40 metres with stations such as 5W1FT, ZL7AA, GB2BJK, and others with weak, but readable signals.

Joy has received a note from Don G3NOF, of the Yeovil Amateur Radio Club, in Somerset (Joy's QTH is Yeoval). Don, noted that the call GB4OYC was used from October 16-19, to celebrate 40 years of operation.

This club has really got amongst the special calls as, in mid-August they operated as GB2YFT (Yeovil Festival of Transport) and GB2MSS (Mid-Somerset Show). The United Kingdom is really allocating a number of special once-off call signs of late, and it is a pity that VKs are not taking advantage of the propagation, combined with patience and tenacity, to pick them up.

Don was awarded the *Royal Order of Trans-Atlantic Brass Pounders* for 1986/1986, from the RSGB, with the noted commendation of "for outstanding and consistent DX performance." Congratulations from all DXers, Don.

Ladies and gentlemen, DXing is an art wrought with frustration, perseverance and time. Are you a DXer or a listener who is very choosy for 5x9 stations, not in a pile-up?

LISTEN

TP2CE, is hoping to actuate this call from 5-7th, this month.

HEARD ISLAND

VK0 Heard Island could be heard shortly, if a party was successful landing from the *Nella Dan*, last month. As there is apparently a lot of work to be done, operation could be infrequent, but it is believed one of the Meteorological Department Observers has an amateur licence. Operation therefore, would only be in off duty hours!

It appears that the working-party will leave the island about the middle of January 1986, weather permitting, on the *Icebird* which will be en route to the other Antarctic bases to effect crew changeovers and reliefs.

If you have it confirmed, please refrain from being in the log and allow others to have this much needed country confirmed.

NEW CALL

Noel 8Q7AV, is presently using the call sign, 4S7AVR. Noel is an airline captain and the airways of 4S7 are not new to him. His present QSL address is 15/2 Balahenmulla Lane, Colombo 6, Sri Lanka.

YI1BGD

A number of operators use the call and generally give their own box number for QSLs. If you miss it, do not despair and QSL to the Scientific Centre, PO Box 5864, Baghdad. The cards, which are beautifully produced, were donated by the Family DX Foundation. Remember IRCs, that have been issued within the last two years are only acceptable by the postal authorities in this country.

KERMADEC ISLANDS

Listen for Peter ZL8HV, from this area on the HF bands. Peter hopes to be active as work duties permit. Remember, if he says he is going to have a meal, he means just that. Otherwise, if he is late, he will be a very hungry lad. This is typical of station operators from Meteorological and Antarctic stations. Generally, they do not run a continuous canteen, unfortunately.

SOUTH SHETLANDS

Apparently, the Uruguay DX Club hopes to actuate the South Shetland area early next year. Ricardo CX2CS, is very keen and CX0XY, should be already quite active with a reasonable amount of RF going up the coax. Listen out!

THE BANDS ARE NOT DEAD

Jim VK3YJ, the Australian columnist for *73* magazine, still maintains that one can work DXCC in a month. Jim has worked:

1Z9B, 3B8DL, 3D2MR, 4S7NMR, 4Z4VG, 5B4TI, 5B4UN, 5N9GM, 5W1AU, 5W1FT, 6K86AG, 6Y5NR, 7J1ACH, 7X2DX, 8P6OV, 8P6PT, 9H1EU, 9M8GH, 9V1TL, FK25FU, G3EDM, HL1APR, IT9WVL, J37AH, JM1WII/KH2, KH6GS, KL7J, KX6AO, S83H, T30AT, TR8SA, TI2ANL, T32BC, V2AU, V85DU, VE7YL, YO1BGD, and ZL7AA, to name but a few.

Congratulations Jim, firstly on your column, which is read world-wide because of its excellent standard in giving news about Australia, and secondly on the time you find to work the rare ones, considering your other commitments.

QSLs AND ALL THAT

I had second thoughts about publishing the call signs that Joy VK2EBX, had not received cards from, as it was not my intention to embarrass anyone. I am now glad I did as I have found some of Joy's missing cards and probably a few more for others.

A note from Sam VK2AKP, (also 9H1GS and ZB1GS), enlightens the situation. Sam notes: "I occasionally read about amateurs sending cards via the bureau and receiving no answers. One thing to remember is that not all amateurs belong to their society, hence they have no access to receiving their cards. It would therefore be prudent to ask an operator if he is okay for cards by this method.

"Another item to remember is that it takes sometimes years before the cards reach the member and then one has to wait his/her reply.

"Joy complained about Tony 9H1EU. Tony is a very keen amateur, but unfortunately he is not a member of any bureau, so the chances of him receiving Joy's card is very small and if he does, how is he going to QSL?"

Sam has, or can obtain, cards from most 9H1 and 9H4 operators and is willing to assist, either by a SASE to QTHR or by contacting him on the *Land Forces Amateur Radio Group Net*, 3.595 MHz each Wednesday.

Henceforth, Joy, who Sam has cards for, and others will get their cards in the near future. Thanks Sam, for your insight into the system and your assistance.

BITS AND PIECES

TA1A advises that IRCs are not acceptable in Turkey! ! ! ** Do not forget the best photograph of your shack and a little about yourself for next year's issues of *Amateur Radio* and a chance to win that SWR Bridge kindly donated by GFS Electronics. ** **J40MAR** was **Rudi DJ5RT** operating from **(SV5) Kos Island**. "MAR" stands for **Medical Assistance Radio**. ** **VE0MAB** was operational MM from a Coastline Vessel and does not count as a DXCC country. ** **Krishna** signing from Nepal, is a rapid QSLer. Apparently, he is running a 751 to a tribander and is the only one keeping Father Moran company on the bands in this vastly populated country, where the hobby has not really been recognised as yet. ** **Frank ZF1GC** is the only station operational on packet radio from the **Cayman Island Group**. QSL to **VE4XN**. ** **Mount Athos** operations still in the air. WHY? is the big question. Is it more than the documentation? ** **ON7IP/ST2** was due to go QRT at the end of last month. ** Many countries are getting organised on the **WARC Bands**. Although other Regions only encourage CW and Narrow Band modes, have you heard or worked them? ** Amateur radio could unfortunately be a "No-No" again in **Uganda**. ** **3G9** no — it is not a typographical error. The call sign **3G9SBY** will be heard from **Yelco** located in the Antarctica from December 5 for five weeks. The operators are **CEs** who promise modes such as **CW/SSB/RTTY** and **AMTOR** on all bands from 160 metres through to 10. ** **Trindade Island** had its share of operators in October. Hope that the large number of VKs in need of this area for a "new one" made it. ** **Luiz S92LB** is still active spasmodically but is very quick on returning cards is your are lucky enough to make a contact. ** **Kimsan** signing as **XU1SS** has been reasonably active again, generally 1300-1400 UTC. ** **CV1R** was activated by the **Radio Club de Maldonaldo** and located on the **Isla de Lobos**. ** **EF6RCD** was a special call used to activate **Formenera Island**. The station used one kilowatt on all bands. QSL to **EA5QZ**. ** **Calvin VQ9QA** is active until mid-March, with hopes of operation on 160 metres. ** **Akito JA5DQH** will sign **NN7S** until December 5, after hoping to sign as **XX9XX** at the end of November. QSL to **JA5DQH**. ** **USSR amateurs** gained access to the use of 10 MHz as from October.

CLOSURE

A Happy Christmas to all and the best in health and happiness for 1987, from this QTH to yours. Do not eat too much Christmas Pudding and the trimmings, as the *Ross Hull Contest* needs your support. And most importantly, do not forget to send in your log!

The deadline of these notes for the February edition is December 29. In other words, there is no rest for a columnist to make his errors, and please do not forget the Best Looking Shack Competition, commencing next month.

In closing, a couple of "gems" from Lee KH6BZF, Editor of the weekly propagation publication *KH6BZF Reports*. ". . . when you retire you are in control of one of the most powerful work tools — ***tomorrow***! ! !" and ". . . you know you are getting older if you run into a girl you once knew and it is her daughter! ! !

THANKS

Sincere thanks since I have been writing this column, and particularly over the last year, to the editors of weekly, bi-weekly and monthly publications such as: *ARRL Newsletter; BARG; CQ-QSO; The DX Family Foundation Newsletter; Inside DX, The W6GO/K6HHD QSL Manager List* (a must for all DXers); *KH6BZF Reports* (for those interested in propagation and hilarious quips, not to be missed); *Long Island DX Bulletin; Papakura Radio Club Bulletin* (which has an editor with a sense of humour); *QRZ DX* (with Bob W5KNE, a tireless editor who never seems to rest); *RSGB DX News* (a valuable publication); and the *Westlakes Amateur Radio Club Newsletter.*

Magazines including *Break In; cqDX; DX Post; JA CQ; JARL News; KARL News; QST; Police Life; RadCom; Veron; Weather News* and *Worldradio*, to mention but a few.

Individual contributors this month include JH1KRC; JP1LAB; W4FRU, WB6GFJ; VKs 2AKP, EBX; 3PA, XV, YJ, YL; 6NE; ZL1s AMN and AMM and Christa Stueckle.

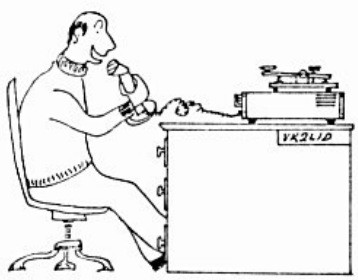
To all contributors, your assistance, advice and information has been greatly appreciated and invaluable. Sincere thanks to one and all and let us hope 1987 is a year of health, peace, prosperity and plenty of the DX we all need.

—73, Ken VK3AH

ar

"Bought an absolute bargain at the Field Day OM — although I haven't found out what it is yet?"

—VK2COP



HISTORICALLY SPEAKING

Following is a portion of a dossier, containing hundreds of newspaper clippings, compiled by George Palmer VK4ZG and contributed by Jim Davis VK7OW. Jim is a historian of some note and has the original Carbon Reisz microphone used by Broadcast Station 7UV, in his microphone museum. He also has a private cinema with many restored cinema projectors, a complete 1927 "Talkie" system and Disc No 7 which was played in conjunction with reel one of the Warner Brothers 1927 movie, "The Jazz Singer."

George Palmer, was the founder of Broadcast Station 3AK in Melbourne, and in 1933, he bought 7UV Ulverstone, Tasmania.

At the age of 17, George was the youngest film producer in the world. In 1927, he made the film *The Northbound Limited*, an express train drama in which he performed all the stunt work.

In early 1935, the PMG's Department approved a substantial power increase for 3AK. As a result of this power increase it was necessary to build new equipment so the station could serve the Victorian listeners in the same efficient manner as other Melbourne B class stations. The wavelength of 200 metres however, remained unaltered. The station was located at 116 Queen Street, Melbourne, and was in its fourth year of operation.

During the early years of radio, when amateurs were allowed to transmit music on the lower end of the broadcast band, some difficulties were encountered by the amateurs and broadcast stations.

From Broadcasting Business, March 8, 1935:

"Following an alleged statement of Mr Brown, Director of Postal Services, and published in the Melbourne 'Sun-Pictorial' on Saturday, 23rd February, there has been some discussion in Melbourne broadcasting circles as to what constitutes a 'B' station.

"The 'Sun's' paragraph read as follows: 'So as not to interfere with station 3AK, three or four amateur broadcasters in Balwyn district have been told by the Postal Department to remain off the air, said the Postal Director (Mr Brown) yesterday.

" 'There is no general exclusion of amateurs. Station 3AK, while not a recognised 'B' class station, broadcasts regularly late at night and at certain hours on Sunday.

"The words 'Station 3AK while not a recognised B station caused us to investigate the position and the following statement was made by Mr C F Palmer, Managing Director of 3AK.

"The statement in the 'Sun' that 3AK is not a recognised B class station is a most unwarranted and harmful one. 3AK is licenced as a B class station by the PMG's Department and is now in its fourth year of service, paying from its very inception in 1931 the same licence fee as other B class stations. It also operates on its own wavelength independent of all other Melbourne stations, and the only distinction between the other stations in that its authorised hours of service are restricted.

"Mr Brown's remarks that certain amateurs in the Balwyn district must remain off the air so as to avoid interference with 3AK also conveys another wrong impression, as there are still certain times when experimental stations in this district and elsewhere could continue, so why penalise three or four amateurs when all that is necessary is a simple re-arrangement of their schedules?

"Inquiries at the Postmaster-General's Department failed to determine whether the Department considered whether 3AK was a recognised B station or not.

"The fact of the matter is that there are no B stations and on that score the statement is loose. There are three divisions of Australian broadcasting stations: the National stations, the licenced stations and the amateurs.

"3AK is most decidedly not a National station and, considering that it pays the same licence fee as the other licenced stations, it may safely claim to be a recognised licenced station.

"Owing to its looseness, a misconception about 3AK can be caused and it is rather surprising to see such a statement allegedly emanating from the PMG's Department. If, on the other hand, such a reference was not made by the PMG, then it is loose and harmful reporting."

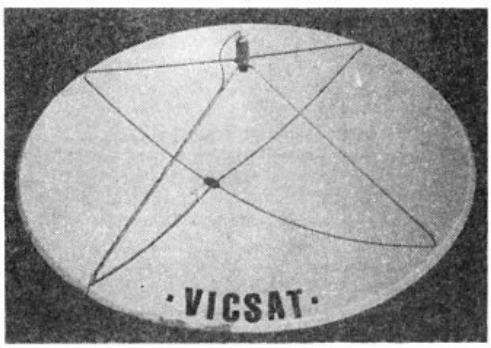
The amateur stations affected in the above were 3BT, 3OY, 3OV, 3TM, 3KE, 3XL and 3CR.

No doubt the matter was eventually resolved amicably between all parties.

On April 20, 1935, 3AK operated from 12.30 pm to 2.30 pm, then from 10.00 pm to 12.00 midnight.

—Information compiled from the following 1935 news-clippings: THE AGE, Melbourne, BROADCASTING BUSINESS, Sydney; LISTENER IN, Melbourne; AMATEUR RADIO, Melbourne; WIRELESS WEEKLY, Sydney

SATELLITE RECEIVE ONLY DISHES



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RF AEROSPACE SAT 208 GR

SPECIFICATIONS

BAND	2 Metre Amateur Band
ELEMENT NUMBER	8
FREQUENCIES COVERED	140-150 MHz
REFLECTOR TYPE	Grid Type (4 Elements)
DRIVEN ELEMENT	Folded Dipole
DIRECTORS	Parasitic (Dipole Type)
INPUT IMPEDANCE	50 Ohms
VSWR	Less than 1.3/1
MAXIMUM POWER	100 Watts
POLARISATION	Vertical or Horizontal
BANDWIDTH	10 MHz at less than 2/1
GAIN OVER A ½ WAVE DIPOLE	13.6 dBd Measured
FRONT TO BACK AT CENTRE FREQUENCY	Greater than 35 dB Measured
SIDE REJECTION AT CENTRE FREQUENCY	Greater than 65 dB Measured
HALF POWER BEAMWIDTH	E plane 17° H Plane 23°
CONNECTION	Approx 2 mtrs of RG213 Coaxial Cable terminated with a "N" Type Female Plug
WIND TOLERANCE	160 km/h (100 mph)
BOOM AND ELEMENT CONSTRUCTION	6063 Aluminium Alloy

RF AEROSPACE SAT 7018 GR

SPECIFICATIONS

BAND	70 cm Amateur Band
ELEMENT NUMBER	18
FREQUENCIES COVERED	430-440 MHz
REFLECTOR TYPE	Grid Type (4 Elements)
DRIVEN ELEMENT	Folded Dipole
DIRECTORS	Parasitic (Dipole Type)
INPUT IMPEDANCE	50 Ohms
VSWR	Less than 1.5/1
MAXIMUM POWER	100 Watts
POLARISATION	Vertical or Horizontal
BANDWIDTH	10 MHz at less than 2/1
GAIN OVER A ½ WAVE DIPOLE	16.4 dB
FRONT TO BACK AT CENTRE FREQUENCY	Greater than 28 dB
SIDE REJECTION AT CENTRE FREQUENCY	Greater than 60 dB
HALF POWER BEAMWIDTH	E plane 20° H Plane 26°
CONNECTION	Approx 2 mtrs of RG213 Coaxial Cable and a "N" Type Female Plug
WIND TOLERANCE	160 km/h (100 mph)
BOOM AND ELEMENT CONSTRUCTION	6063 Aluminium Alloy/Drawn Tube
BOOM LENGTH	3 Metres

RF AEROSPACE HD 604 Y

SPECIFICATIONS

BAND	6 Metre Amateur Band
ELEMENT NUMBER	4
FREQUENCIES COVERED	50-54 MHz
REFLECTOR TYPE	Single (1 Element)
DRIVEN ELEMENT	Gamma Match
DIRECTORS	Parasitic (Dipole Type)
INPUT (Design) IMPEDANCE	50 Ohms
VSWR	Less than 1.2/1 at centre frq
MAXIMUM POWER	1 kW
POLARISATION	Vertical or Horizontal
BANDWIDTH	4 MHz at less than 2/1
GAIN OVER A ½ WAVE DIPOLE	7.6 dBd
FRONT TO BACK AT CENTRE FREQUENCY	18 dB
CONNECTION	SO239 Socket (accepts PL259)
WIND TOLERANCE	160 km/h (100 mph)
BOOM AND ELEMENT CONSTRUCTION	6063 Aluminium Alloy/Drawn Tube
BOOM LENGTH	3.6 Metres

RF AEROSPACE HD 205 Y

SPECIFICATIONS

BAND	2 Metre Amateur Band
ELEMENT NUMBER	5
FREQUENCIES COVERED	144-148 MHz
REFLECTOR TYPE	Single (1 Element)
DRIVEN ELEMENT	Gamma Match
DIRECTORS	Parasitic (Dipole Type)
INPUT (Design) IMPEDANCE	50 Ohms
VSWR	Less than 1.2/1 at centre frq
MAXIMUM POWER	1 kW
POLARISATION	Vertical or Horizontal
BANDWIDTH	4 MHz at less than 2/1
GAIN OVER A ½ WAVE DIPOLE	7.8 dBd
FRONT TO BACK AT CENTRE FREQUENCY	18 dB
CONNECTION	SO239 Socket (accepts PL259)
WIND TOLERANCE	160 km/h (100 mph)
BOOM AND ELEMENT CONSTRUCTION	6063 Aluminium Alloy/Drawn Tube
BOOM LENGTH	1.830 Metres

RF AEROSPACE RFA 70 CMVCP

SPECIFICATIONS

BAND	70 cmtrs
FREQUENCIES COVERED	430-440 MHz
INPUT IMPEDANCE	50 Ohms
VSWR	Less than 1.5/1
MAXIMUM POWER	100 Watts
POLARISATION	Vertical
GAIN OVER ISOTROPIC	4.8 dBi
CONNECTION	SO239 Socket (accepts PL259)
WIND TOLERANCE	160 km/h (100 mph)

The antenna is a three quarter wave-end fed-C-Pole, and is designed to give a low angle of radiation for maximum coverage of fixed and mobile stations.
The antenna is encased in a Non-Contaminating PVC Shroud, this ensures waterproofing and considerable mechanical strength.
The antenna requires no tuning, simply mount to mast as per instructions, connect the coaxial cable, and the antenna is ready for use.

RF AEROSPACE RFA 2MVCP

SPECIFICATIONS

BAND	2 mtrs
FREQUENCIES COVERED	140-150 MHz
INPUT IMPEDANCE	50 Ohms
VSWR	Less than 1.5/1
MAXIMUM POWER	100 Watts
POLARISATION	Vertical
GAIN OVER ISOTROPIC	4.8 dBi
CONNECTION	SO239 Socket (accepts PL259)
WIND TOLERANCE	160 km/h (100 mph)

The antenna is a three quarter wave-end fed-C-Pole, and is designed to give a low angle of radiation for maximum coverage of fixed and mobile stations.
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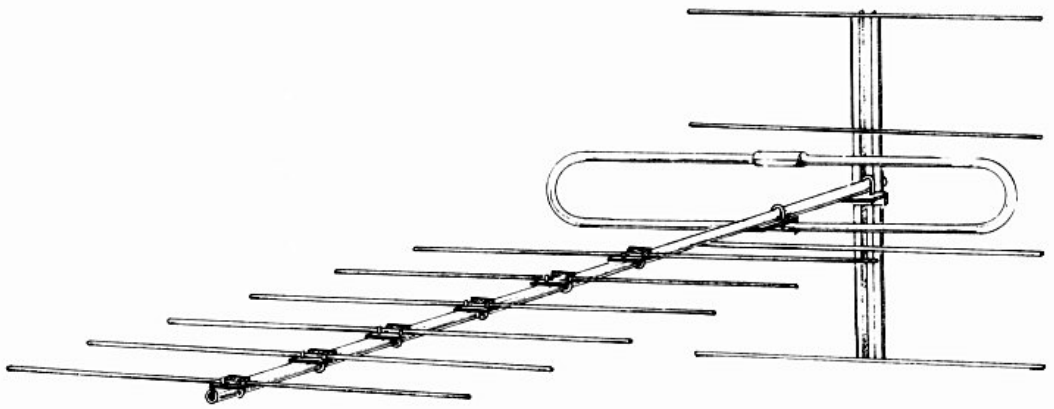
SPECIFICATIONS:

Band	2 Metre Amateur Band
Element Number	Eight
Frequency Covered	140 - 150 MHz
Reflector Type	Grid Type (4el)
Driven Element	Folded Dipole
Directors	Parasitic (Dipole Type)
Imput Impedance	50 Ohms
VSWR	≤ 1.3/1
Max.Power	100 Watts
Polarization	Vertical or Horizontal
Bandwidth	10 MHz at ≤ 2/1
Gain over 1/2Wave Dipole	13.6 dB Measured
Front to Back at Centre Frequency	Greater than 35 dB Measured
Side Rejection at Centre Frequency	Greater than 65 dB Measured
1/2 Power Beam Width	E plane = 17° H plane = 23°
Connection	Approx 2Mtrs RG213 Coax Cable, Terminated with a 'N' type female plug.
Wind Tolerance	160 KM/H (100 MPH)
Boom & Element Construction	6063 Aluminium Alloy.



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Contests

Ian Hunt VK5QX
FEDERAL CONTEST MANAGER
Box 1234, GPO, Adelaide, SA. 5001

CONTEST CALENDAR

DECEMBER

5- 7	ARRL 160 metre CW Contest (Rules this issue)
13-14	ARRL 10 metre Contest (Rules this issue)
-13	Ross Hull Memorial VHF Contest commences (Rules November issue)

JANUARY

- 1	UBA SWL Competition (Continues to December 31, 1987)
- 5	Ross Hull Memorial VHF Contest concludes
23-25	CQ WW 160 metre CW Contest
31-	YL ISSB CW Contest

FEBRUARY

- 1	YL ISSB CW Contest (concludes)
7- 8	QCWA CW QSO Party
14-16	YLRL YL-OM Phone Contest
20-22	CQ WW 160 metre SSB Contest
21-22	ARRL DX CW Contest
21-22	YL ISSB Phone Contest
28-	YLRL YL-OM CW Contest

MARCH

- 2	YLRL YL-OM CW Contest
7- 8	ARRL DX Phone Contest
7- 8	QCWA Phone QSO Party
14-15	John Moyle Memorial Field Day Contest
28-29	CQ WW WPX SSB Contest

There certainly seems to be plenty of action available to those interested in contesting during the next couple of months, be it either phone or CW, OM or YL operators. I trust that you will enjoy it!

Well, once again we come to the end of another year. The time certainly does seem to fly past. Looking back over the last 12 months, I find that generally I can feel satisfied that contesting in Australia has been on a fairly sound footing. As Federal Contest Manager I know that I cannot please everybody as far as rules go. I have, however, tried to bring about improvements in contests without doing so in a radical way. Change can, undoubtedly, be a very good thing at times. Change, just for the sake of change, is a pointless exercise. I feel that more can be done to improve contesting within our area of operations, as well as throughout the world of amateur radio in general. I will be making some recommendations to the next Federal Convention in 1987, as well as possibly leaving suggestions for my successor later in the coming year to think about. Meanwhile, I will watch with interest to see whether or not major changes will need to be made to the Ross Hull Contest format, whether we see an increase in CW operation in contests, whether more novices will begin to participate in contests. It will also be interesting to see how well the combining of our Field Day and Remembrance Day Contests with like events in New Zealand, will work out. Thus, I do look forward to the coming new year with anticipation as well as enthusiasm. Traditionally, at this time, we do contemplate the past and look forward to the future. I would wish for us all, that the future will be one of happiness and peace.

Just recently I attended a most moving presentation held at dawn in the parklands bordering the City of Adelaide. On a particularly beautiful and clear morning, a group of young women, all dressed in white, gathered there representing the *Rising Generation*. They had brought with them, written messages which were to be attached to gas filled balloons. These messages were about such things as peace and love. Certainly a very fitting approach with the International Year of Peace, which is fast coming to a close. The themes chosen were Faith, the Divine Nature of Mankind, Individual Worth, Knowledge, Choice and Accountability, Good Works and Integrity. Each of these subjects, I would, believe are such that our Amateur Radio Fraternity would wish to apply such principles in our activities. These young women were sending their messages attached to balloons in the hope that they would be found by someone and their messages read and understood. Likewise, we, as radio amateur operators send messages. We have the benefit that in an instant we usually know if someone has received our message.

I would like to think that as we send out messages in the new year and the years to come, we too might carefully consider our fellow man and try and make sure that our messages are ones which will be of help in building a better, happier, more peaceful and tolerant world. Goodness knows, we constantly claim the role of being International Ambassadors of Goodwill, so let us not just think of this only at Christmas time but rather make a firm determination to try to follow this idea at all times. Let this not be only on an international level either, but also apply it to our relationships with the amateur around the corner, our Divisional Council, club officers and members as well as our workmates, non-amateur friends and neighbours and particularly our families. I am sure that we can be a force for good in the world with our association with such a marvellous hobby as amateur radio.

I would like, at this special season of goodwill to express to all, wishes from both my wife Sylvia and myself for a very Happy and Blessed Christmas and for a Peaceful and Successful New Year.

—73 de Ian VK5QX

REMEMBRANCE DAY CONTEST — 1986
CONGRATULATIONS TO THE VK4 DIVISION

Below you will read the full results of the Annual Remembrance Day Contest for 1986. The VK4 Division, I am sure will be most pleased to receive the trophy at the 1987 Annual Federal Convention. The last time that Division won the contest was in 1971, so one can see that there has been quite a drought for VK4. It may interest you to know just how many times the trophy has been won by each Division. Here are the details:

VK1 — 2; VK2 — 3; VK3 — 1; VK4 — 4 (including 1986); VK5 — 14; VK6 — 8; VK7 — 7.

Here are a few more statistics regarding the 1986 contest.

DIV	No LOGS/No LICENSEES (Listed in order of participation percentage)	ENTRIES PERCENT
VK1	55/302	18.2
VK6	120/1438	8.34
VK5	121/1774	6.82
VK7	33/5897	5.62
VK8	6/173	3.46
VK4	89/2619	3.40
VK2	133/4887	2.72
VK3	93/4559	2.03

Average Points per Log by Division (listed in order of average score)

VK5	15638/121	129.23
VK1	6324/55	114.98
VK7	3719/33	112.60
VK6	13400/120	111.66
VK3	10367/93	111.47
VK4	9788/89	109.97
VK2	13798/133	103.74
VK8	263/6	43.83

The formula for determining the winning Division in this contest has been changed a number of times as has been the method used for scoring contacts. I am quite convinced that simply scoring one point per contact is the right method and I can provide comment to support this premise, however, I am far from convinced that the method of derivation of the formula determining the final result is what is really required. In a later issue, I will provide more comment on this subject with a view to stimulating discussion at the next Federal Convention. Meanwhile, it is good to see the trophy begin to change hands on a more frequent basis.

Amongst the individual results of the Remembrance Day Contest, you may note the entry from M Rayner in the SWL Section — VHF. This was really an effort worth commenting on. Matthew is located in the Canberra area. To log the total number of 804 contacts on VHF from that location is certainly a terrific effort, and I note from Matthew's log that, on quite a few occasions, he was logging at a rate of up to five contacts per minute. I know, as a fairly experienced contest operator, that it does require quite a deal of concentration to maintain a contact rate of four per minute and upwards. I imagine that when Matthew obtains his call sign and comes on the air as a contester on the transmitting side of things, he will probably give quite a few of us a fair run for our money!

The standard of logs generally was fairly good, as referred to in my column in November, however, I would again plead with the minority of entrants to please read the rules for contests thoroughly before submitting logs. Different categories/sections etc, in most contests, usually mean separate log entries, and by separate I mean — ***totally separate*** logs, declarations, and summary sheets are required.

Two logs were received well after the due date. One from VK6 had been mailed Express Courier on September 25 (closing date September 26). Australia Post, in a valiant effort to ensure that the posted article was delivered in accordance with the best traditions, had attempted to deliver the package to the WIA rooms at the Thebarton Council area. These rooms are only attended when meetings take place at the Divisional Headquarters. Australia Post had taken this action, I am sure, in good faith rather than just deposit the package in a post office box. This is the second occurrence of this nature to my knowledge in close to three years. The message is *Do not send your log so late that it needs extreme action for it to arrive on time. Do not use Express Courier unless you are sure that the item can be properly delivered in person.* One other log was sent to the Federal Office by a VK2 operator instead of being sent to the correct address for the FCM.

You may have been surprised to see the results of the contest published as early as December. There are at least four reasons for this. Firstly, I have had just a little more time available to carry out the log-checking, etc. Secondly, I felt that I really had to do something to make amends for somewhat of a mistake made last year under extreme pressure. (Recover my good name if any, so to speak).

Thirdly, I have now had somewhat more experience at handling the Remembrance Day Contest and thus was much better organised. Fourthly, and by no means of least importance, I had available to me an excellent computer facility to help in compilation and listing of the results. This latter aspect certainly made my task a great deal less onerous and accounts to a large degree for the speed in which the results can be produced. I still do not have my own computer and tend to feel that in contest logging, I would be slowed down somewhat by the use of a computer as against my manual logging and checking methods used while I operate. Even so, I hear others telling me that computer logging for contests make things so much easier, so I guess that eventually I will have to weaken and try it out in practice. (I find it hard to let go to a well tried and proven system though!).

Now for some comments from entrants in this year's contest.

How about a few words of gratitude for the assistance, or maybe tolerance, given by our wives, etc. Susan, my wife, ran the log on my Sanyo for all but two amateurs. I could not have been more grateful — VK1PJ.
(I concur heartily, Phil. However, I must do something to slow my wife down in bringing me drinks all the time. I then consume them and have to leave the transmitting location at more frequent intervals).

The operation standard of other stations in this years contest were very co-operative and pleasant — VK3BGS.

Sorry that I have not included a dupe sheet, however I have thoroughly checked the times. I will do better with the logs next year. . .a most enjoyable contest — VK1ZDX.

. . .had a memory chip failure which, in turn, damaged a data buffer chip. . .other than *Murphy* being about with hob-nailed boots, I enjoyed the contest — VK2BAM.

Thank you for the time and the effort you put in as the Contest Manager — VK3YH.
(You are welcome, Steve — FCM).

Met up with a number of regular RD Contest Operators; 5BI, 2APP, 5QX etc. I have never met them outside the RD Contest!. . .to me it's the fun of the fair digging the weak ones out of the QRM. Fortunately, there are many more gentlemen operators about, than the other kind. I'll be rendering a report again next year. But hope to 'work' for more that the paltry 10 hours I was able to operate for this year — VK4AEV.
(I do operate regularly on the bands every week. That way I keep my station in shape for contests — 5QX).

This is the last batch from me. I understand some people sent theirs in direct. I don't envy your current task. 2 hours was just right — Christine VK6ZLZ.
(Christine collected as many as possible of the VK6 logs and sent them all along together with a neat listing of details of the logs. Thanks for your efforts Christine — FCM).

An excellent contest this year. The 2 hours between contacts on VHF was perfect over here in the west — had time to work some HF in amongst the VHF scrambling — VK6YS.

I do not have a VHF log again this year. The sole reason is that there was not enough interest in this area at the time. The rules for VHF this year I believe are appropriate and I suggest no change for next year — VK6DM.

This is the second year that the Northern Corridor Radio Group has competed in the RD Contest. 1986 was more enjoyable than 1985 (which was great) and here's hoping that 1987 will be better than 1986 — VK6AFK for the NCRG.

I generally enjoyed the contest although the propagations conditions on 10 and 15 made it more difficult for the novices. I was disappointed with the operating habits of some stations who started transmitting right over the top of me without asking if the frequency was clear. . .late Saturday and early Sunday was very different with everyone friendly and courteous — VK5NQP.

It would not be normal for me to omit any comments on the RD Contest. a) 2m FM Although activity was down it was at least orderly and the repeat time interval is good. b) By comparison 80m HF was the usual shambles — a problem we will always have. Although a nuisance to calculate and check, I liked the variable points system — VK5EA.

I seem to be scoring fewer and fewer QSOs as the years go by. Maybe it's coincidental with the sunspot cycle; maybe fewer and fewer CW ops contesting; maybe a bit of both! Or maybe I'd do better by improving on an 18AVT trap vertical antenna. Getting the ZLs Memorial Day to run in conjunction with the RD sounds like a great idea to me. At least we could expect more contestants. Something should be done to encourage more contestants since CW was the main mode of those we commemorate (I know, being fortunate enough to survive). I did suggest, a few years ago, that, on HF, the *minimum QSO number* could be made *compulsory CW QSOs* — VK2AQF.
(Now, there is an interesting approach. Anyone else like to comment — FCM).

Once again we have had a most enjoyable RD Contest which was, if anything, more enjoyable than last year. The HF Section was difficult due to poor propagation. . .return to the rule which awarded higher points for more difficult contacts. . .If this griping sounds familiar, I have been making the same comment every year since 1981. *Please bring back the differential points!* Now that I have had my grumble I can thank you for a most enjoyable contest — VK6FC.

As a school radio club we found the Novice and RD Contests very worthwhile club activities. . .would really recommend contesting to other school radio clubs as a means of providing a focus to other activities — VK3CP for VK3IE.

Can't remember having heard as much action as there was this year. . .speaking of novices, there didn't appear to have been too many operating. . .would also like to see the WARC Bands encouraged in the contest. We are constantly being bombarded with the "Use them or lose them" philosophy. . .We did have one problem with the computer. Whenever we were transmitting on HF, the computer operator would have to keep his fingers at least 40 mm from the keyboard, otherwise the keyboard would send out spurious characters to the PC. Steve VK3DCA, suggested that I should earth myself, so I connected a wire to the SEC earth and put the other end in my mouth.
(Boy! This guy's either really game or nuts! — FCM).

No success. The second try was to wrap my fingers in aluminium foil. This fixed the problem but I couldn't type properly and the foil kept falling off. We ended up tapping the keys with a pen — VK3CRA for VK3SCD/P.
(. . .and resourceful too! It is policy that the WARC Bands should not be used for contest purposes — FCM).

Operated QRP during the contest using a Heathkit HW8 transceiver with only 2.5 watts into the antenna and enjoyed the challenge very much. I must thank the operators who stood aside so I was able to make the contact even though it was their frequency. There are still a lot of gentlemen on the CW end of the band — VK4SF.

. . .another fine event. I operated my own station (VK4BNL) from my home QTH and the Scout Association Station VK4SAA from Baden Powell Park. . .I found the courtesy on air at all times magnificent. . .we were delighted at VK4SAA for encouraging comments to us from time to time. . .Our main reason for putting VK4SAA on the air was not only our support for the contest itself, but also as a means of showing our appreciation of the WIA for their support shown us since the inception of JOTA. . .We hope to take part again in 1987 — VK4BNL.

Dear OM, my weekend was very well organised until Saturday evening when I thought I'd have a quick listen before retiring. Next year, I'll ensure that the fence demolition is on another weekend, and get someone to fill for me in the Church Choir — VK2AYO.

It was a nice coincidence to work you on each of the three bands which the club station worked. . .We enjoyed the contest very much — VK4AOR for VK4BTB.

Just a short note to say just how much we enjoyed the contest. Many thanks for running it. . .On VHF things were a little slow. . .on HF conditions were good and there were ample stations to work — VK3DBQ and VK3VOJ.

We would like to thank the WIA, through you, for having such a wonderful event — VK2AXS for VK2IYP/P, VK2AUZ/P and VK2AXS/P.

Good luck with your efforts and I hope you don't have too many late nights — WIA-L30371.

The novice holders seemed to be a bit thin this year and I did not work one on CW — VK2DQP.

I entered the sideband transmitting section of the contest, however I did work some stations on CW — VK5BWZ.

. . .enjoyed this contest and I think the two hours between VHF/UHF contacts is a far better idea than last year — VK5KCI.

I missed about an hour late on Sunday afternoon because the guys from Melbourne came down from the mountain where they had been installing the Porepunkah two metre repeater — VK3CGG.
(Where on earth is *Porepunkah*? — FCM).
(Near Bright, Victoria — Ed).

General politeness and friendliness high — VK5DJ.

A great contest — one of the best I've known for spirit, lack of snarls, etc over the last XX years. Well done for the clear rules, and may the best Division win — VK4AEM.
(Well Ted ! ! ! — FCM).

This is the first time I have taken part. . .I enjoyed the weekend and would expect to take part next year — VK2BMZ/P.

Transmitter output was three watts on 80 metres and two watts on 40 metres — VK4CI.

One modern thing I don't like is the dropping of the RST report — VK2JM.

I really enjoyed the contest, but lack of numbers on the CW side of the contest — VK2CX.

Enjoyed the time I spent especially on 40 metres — ZL2ALJ.

Good fun — enjoyed the participation — VK2CKW.

This was my first serious attempt at a contest and I found it very enlightening on how friendly it can still be. Many thanks to all the people who I contacted — VK5ZM.

I have quite a number of other letters received with the logs, however space does not permit the publication of extracts from all of these in this issue. I will endeavour to include comments from the balance of correspondence in the next issue.

1986 REMEMBRANCE DAY RESULTS

The formula for determination of results for each Division is: Total Points/Total Divisional Licensees X Weighting Factor.

VK1	6324/ 302	x	1.1	23.03
VK2	13798/4887	x	7.5	21.18
VK3	10252/4559	x	5.9	13.27
VK4	9788/2619	x	6.2	23.17
VK5	15638/1774	x	1.4	12.34
VK6	13400/1438	x	1.5	13.98
VK7	3719/ 587	x	2.2	13.94
VK8	263/ 173	x	6.2	9.42

DIVISIONAL SCORES

VK1		VK4		VK7	
HF Phone	3137	HF Phone	7826	HF Phone	3189
VHF Phone	3187	HF CW	614	HF CW	314
		VHF Phone	1348	VHF Phone	216
TOTAL	6324	TOTAL	9788	TOTAL	3719

VK2		VK5		VK8	
HF Phone	11587	HF Phone	10694	HF Phone	224
HF CW	1543	HF CW	741	HF CW	39
VHF Phone	668	VHF Phone	4203		
TOTAL	13798	TOTAL	15638	TOTAL	263

VK3		VK6	
HF Phone	6223	HF Phone	5774
HF CW	1218	HF CW	513
VHF Phone	2926	VHF Phone	7098
		VHF CW (RTTY)	15
TOTAL	10367	TOTAL	13400

LICENSEES per Division are:

VK1	302	VK2	4887	VK3	4559
VK4	2619	VK5	1774	VK6	1438
VK7	587	VK8	173		

INDIVIDUAL SCORES BY DIVISION

VK1 DIVISION

HF Phone

1PJ	645	1OO	200	1DW	80	1VB	21
1PP	305	1ZL	176	1BAT	68	1KED	20
1LF	248	1ST	154	1KV	64	1KID	20
1NCO	236	1RH	139	1KCM	52	1GB	15
1WX	230	1TD	95	1MX	30	1WI	12
1RG	212	1BEE	82	1KRD	23	1KEN	10

. POINTS SUB-TOTAL 3137

VHF Phone

1ZAR	301	1KRM	122	3DZB/1	74	1CD	39
1ZIP	260	1ZJR	121	1BAT	62	1ST	38
1ZDJ	214	1DW	115	1RH	60	1KRD	30
1ZDX	214	1ZL	110	1LF	59	1MX	28
1WX	208	1PP	90	1BEE	55	2EY/1	26
1ACC	208	1OK	88	1GB	52	1RG	23
1KNP	160	1TD	84	1OO	44	1KED	20
7ZNP/1	160	1KV	80	1WI	42		

POINTS SUB-TOTAL 3187

TOTAL POINTS VK1 DIVISION 6324

VK2 DIVISION

HF Phone

2KL	651	2NW	162	2IV	76	2TR	32
2BFR	562	2RE	159	2AJO	70	2BDT	32
2SJ	464	2BMZ	157	2FFF	70	2AV	30
2DCL	450	2PN	134	2COP	65	2SCH	30
2DVU	405	2AHV	130	2BMX	64	7GO/2	28
2BAM	380	2DUA	130	2WT	62	2HJ	26
2DXS	328	2ALZ	120	2PY	60	2QC	25
2BJN	327	2CDG	120	2MUD	58	2SA	25
2IYP/P	321	2ZL	111	2CJH	56	2AHA	24
2AOA	317	2ELB	111	2DDW	56	2OE	23
2PD	314	4DO/2	109	2DSM	56	2PC	21
2AGB	301	2KBK	108	2AYO	53	2BTZ	21
2AMU	296	2CKW	102	2CF	51	2MUZ	21
2JBM	248	2BDN	101	2NV	50	2DHH	20
2WI	246	2NNK	101	2PU	50	2CU	19
2BQS	233	2DOZ	97	2ETR	50	2AUZ	18
2PS	231	2EXA	95	2AL	48	2DFY	18
2ARG	220	2PKW	93	2RX	44	2KGX	16
2PMN	216	2HT	89	2CXX	40	2RJ	15
2ARQ	213	2ANO	86	2CJN	39	2LE/P	14
2UM	202	2ABC	81	2KA	35	2AIM	14
2BIP	200	2DQP	81	2BHO	35	2AXS	14
2AGF	182	2AIC	80	2EZB	35	2EMU	14

POINTS SUB-TOTAL 11587
Check Log received from VK2BUT

HF CW

2KM	146	2AQF	81	2PYM	56	2JM	37
2CX	135	2GT	79	2SU	52	2DQL	30
2BAT	121	2DXS	67	2EXN	50	2ED	26
2EL	106	2AZR	62	2VM	46	2CDG	21
2II	98	2CWS	60	2AIC	45	2RJ	15
2DQP	96	2QL	58	2TR	41	2FNR	15

POINTS SUB-TOTAL 1543

VHF Phone

2DFY	139	2BDT	42	2BAM	25	2LZ	11
2HT	100	2EY	35	2AIC	22	2XIJ	10
2ZZX	60	2SJ	30	2BUT	15		
2JGH	56	2BTZ	27	2ELB	14		
2ZRE	44	2ZL	25	2EZB	13		

POINTS SUB-TOTAL 668
Check logs were received from VK2s KFU and APP

TOTAL POINTS VK2 DIVISION 13798

VK3 DIVISION

HF Phone

3IE	498	3AYF	155	3AJU	90	3DIP	40
3DOM	383	3DBQ	148	3DFI	71	3PIZ	36
3ZI	380	3AUM	140	3DVT	71	3AMW	30
3YH	346	3BHU	134	3DNM	60	3VOJ	28
3BRZ	309	3QP	126	3PDW	56	3BLI	25
3ADW	270	3CQP	126	3XH	55	3NBN	23
3BMG	221	3AGJ	125	3ZZ	54	3BKU	20
3AVV	218	3ABP	120	3CFI	54	3NIR	20
3FR	215	3CX	115	3BII	53	3DOV	12
3SCD/P	212	3ZJ	106	3BEE	49	3DS	11
3KU	206	3PRN	103	3AMU	47	3BGB	11
3XF	186	3CLS	100	3PTR	47		
3SM	181	3KMA	91	3KCT	46		

POINTS SUB-TOTAL 6223
Check logs received from VK3s ALD and CAL

HF CW

3CGG	160	3DVW	93	3AMD	70	3RJ	35
3XB	158	3CQP	91	3CAL	43	3BMG	35
3NK	132	3DG	89	3FC	42	3YW	23
3KS	100	3BDH	82	3AUQ	42	3BKU	19

POINTS SUB-TOTAL 1218

VHF Phone

3KKZ	455	3ZZ	122	3SM	76	3ADW	31
3BMV	450	3DOM	118	3AVV	54	3AOM	25
3DNY	214	3BHU/P	117	3RJ	47	3XEX	25
3DBQ	171	3BMG	104	3SCD/P	44	3BRZ	24
3BGS	155	3DNM	102	3KCT	40	3BGB	13
3KMA	143	3YRP	100	3CLS	34	3YMW	12
3YFZ	123	3BII	94	3BLI	33		

POINTS SUB-TOTAL **2926**

TOTAL POINTS VK3 DIVISION **10367**

VK4 DIVISION

HF Phone

4WIT	461	4JM	181	4AKK	100	4ES	30
4LT	442	4PJ	179	4NDG	90	4AAD	30
4BTB	421	4BCS	175	4BKM	87	4AGL	26
4YX	414	4IR	166	4AMH	77	4RC	24
4SHB	306	4OX	162	4VAT	66	4UB	22
4BAY	286	4ISA	152	4FX	65	4ADY	22
4AEV	276	4OD	131	4BCH	61	4MU	20
4WIZ	275	4BIF	123	4NBL	58	3NV/4	19
4AEM	271	4BTW	120	4AOE	57	4EV	15
4NW	252	4ACW	118	4YN	55	4AGS	15
4VR	241	4BRS	118	4ADC	53	4UJ	13
4YG	236	4RT	117	4CZ	50	4AOR	13
4AQD	233	4RM	116	4SAA	50	4LF	12
4AOH	211	4BZB	101	4MAW	47	4LU	11
4BJA	202	4ACC	100	4NWX	42	4ZN	10

POINTS SUB-TOTAL **7826**

HF CW

4XW	157	4CI	83	4BRZ	80	4VAT	26
4QY	104	4SF	80	4YG	60	4ACZ	24

POINTS SUB-TOTAL **614**

VHF Phone

4ZBV	206	4ISA	79	4ZCC	43	4RX	19
4YJF	154	4ADC	63	4UJ	38	4GT	17
4ZAL	145	4YEA	62	4UB	28	4KZX	17
4AGO	118	4AVR	46	4IY	20		
4WIZ	84	4BZB	46	4KU	20		
4VR	80	4PJ	43	4BNL	20		

POINTS SUB-TOTAL **1348**
Check Log received from VK3NV/4

TOTAL POINTS VK4 DIVISION **9788**

VK5 DIVISION

HF PHONE

5QX	808	5BRS	177	5SG	70	5KBY	37
5ADD	601	5AGP	155	5NWT	70	5TP	35
5BI	570	5AJG	153	5OV	69	5AJJ	35
5DJ	550	5WO	140	5KMH	68	5AIB	31
5SU	513	5XT	131	5ANW	67	5BO	30
5ATU	430	5NQP	115	5KCX	65	5AIM	30
5AYD	429	5NF	112	5RV	62	5DH	27
5ZM	425	5AX	108	5PKW	62	5PF	25
5ATC	407	5OU	106	5TL	60	5YX	25
5AJK	325	5IT	105	5AWF	60	5AOV	25
5NOD	291	5IR	100	5BMT	54	5ABY	21
5SJ	243	5KV	100	5NDB	51	5OB	20
5XI	233	5ACW	100	5TZ	50	5ZE	20
5BWZ	229	5BAR	97	5AMF	50	5LC	18
5NMR	228	5FS	92	5OR	47	5KJT	15
5AH	210	5NTX	91	5UJ	45	5YO	13
5AAC	210	5EA	88	5RK	44		
5APC	201	5GV	82	5NIB	42		
5GZ	180	5TW	75	5BWG	41		

POINTS SUB-TOTAL **10694**
Check logs were received from VK5s ADC and AVQ

HF CW

5UM	179	5FX	74	5AU	30	5BWZ	12
5AGX	176	5ADX	72	5JG	17	5BS	11
5GZ	118	5PF	35	5AYD	17		

POINTS SUB-TOTAL **741**
Check log received from VK5RK

VHF Phone

5KCX	360	5KIA	157	5OR	87	5ZAH	39
5AKK	351	5RV	136	5TZ	73	5TC	31
5APC	273	5ADC	134	5AVQ	67	5UE	28
5APA	246	5RR	111	5AWH	55	5FX	24
5ADJ	230	5AJJ	104	5ZBC	53	5AOV	14
5AAC	204	5EA	100	5YX	48	5IR	12
5SS	201	5ACW	100	5KBY	46	5ZKK	12
5ZHB	170	5BMT	100	5IN	44		
5ANW	164	5KMH	92	5AIB	44		
5OZ	163	5AIM	90	5KCI	40		

POINTS SUB-TOTAL **4203**
Check log was received from VK5BWZ

TOTAL POINTS VK5 DIVISION **15638**

VK6 DIVISION

HF Phone

6YA	573	6RZ	105	6FC	50	6IW	24
6HQ	530	6CX	104	6HE	50	6SA	24
6ED	391	6NMB	102	6RJ	50	6AP	21
6RG	335	6WT	97	6ARD	45	6BO	21
6VS	284	6ACN	97	6SI	44	6DM	21
6AO	213	6ANC	91	6ABR	40	6OW	20
6ZQ	212	6XV	84	6UX	39	6MA	18
6YS	206	6QN	80	6AAE	39	6MB	18
6RU	170	6TO	72	6KOJ	38	6OV	15
6AMB	168	6KY	65	6HT	33	6KWN	14
6OD	159	6LW	65	6ZS	32	6AD	13
6FP	147	6CR	58	6YF	31	6YE	13
6DA	142	6ANM	55	6AV	30	6YL	13
6AEA	123	6WIA	52	6KBL	29	6EF	11
6LZ	109	6PV	51	6WU	27	6NSU	11

POINTS SUB-TOTAL **5774**
Check logs were received from VK6s AR and NE

HF CW

6AFW	119	6MQ	60	6WT	31	6BE	16
6AJ	86	6RF	47	6QI	27		
6RU	63	6SM	44	6YS	20		

POINTS SUB-TOTAL **513**

VHF PHONE

6YS	495	6RG	190	6AMB	104	6CR	41
6RO	406	6FC	176	6ZIT	104	6VF/P	32
6CX	357	6YF	175	6AP	102	6PG	31
6ZLZ	353	6ZAP	175	6ML	101	6QN	31
6LZ	343	6ARD	166	6ANI	100	6AWE	29
6PR	341	6WH/P	146	6AO	84	6IW	25
6ABR	290	6ACN	135	6FE	81	6BO	23
6AR	271	6ANC	131	6KWN	81	6GA	16
6OD	266	6ZGP	122	6KBL	71	6DC	15
6PV	215	6TO	120	6SI	55	6UT	14
6WIA	203	6XV	118	6RU	53		
6AD	203	6AEA	108	6CU	46		
6WZ	198	6NE	105	6EB	44		

POINTS SUB-TOTAL **7098**

VHF CW (RTTY)

6ABR	15

POINTS SUB-TOTAL **15**

TOTAL POINTS VK6 DIVISION **13400**

VK7 DIVISION

HF Phone

7KC	456	7NAI	157	7NIM	103	7BD	26
7AMC	405	7LT	151	7KV	94	7CV	25
7GG	399	7JU	150	7KLD	58	7FD	24
7NCP	320	7GH	119	7HK	42	7NBF	23
7YP	184	7AL	117	7BJ	35		
7VK	166	7FL	106	7RM	29		

POINTS SUB-TOTAL **3189**

HF CW

7JE	112	7VK	93	7RY	79	7FN	30

POINTS SUB-TOTAL **314**

VHF Phone

7ZBW	62	7ZJG	39	7CV	15	7KLD	10
7ZJH	47	7RM	28	7AMC	15		

POINTS SUB-TOTAL **216**

TOTAL POINTS VK7 DIVISION **3719**

VK8 TERRITORY

HF Phone

8AZ	67	8KP	45	8BD	42	8NW	18
8DI	52						

POINTS SUB-TOTAL **224**

HF CW

8HA	39

POINTS SUB-TOTAL **39**

TOTAL POINTS VK8 **263**

NEW ZEALAND

Phone

3KR	330

CW

2ALJ	40	4QY	37

SWL

HF Phone

ARDXC 2151	461	L60068	112
L60036	319	L30371	99
L40804	220	M Chance	54
L50087	139		

VHF Phone

M Rayner	804	M Chance	27
L60036	62		

I now include, just as a matter of interest, some figures which show just how many stations I contacted from each call area outside of VK5 and on what bands. Also shown is a listing of numbers of novice stations contacted, by call areas, on the 80 metre band. To allow some comparison I then have provided figures kindly supplied to me by Phil VK1PJ, summarising his 80 metre band operation. Perhaps there is something to be learned from all these figures or perhaps not!

VK5QX LOG SUMMARY

VK Call Area	1	2	3	4	6	7	8
80 metres	17	100	64	55	52	23	4
40 metres	3	86	73	49	42	14	2
20 metres	1	41	2	51	66	4	2
Total	35	227	139	155	160	41	8
Novices	1	22	13	15	8	6	1

VK1PJ LOG SUMMARY— 80 metres

VK Call Area	Full	Novice	Combined	Area Total
VK2	90	12	10	112
VK3	64	18	6	88
VK4	44	13	4	61
VK5	51	13	4	68
VK6	24	2	2	28
VK7	13	6	1	20
VK8	2	2	0	4
TOTAL	288	66	27	381

GOLDEN ANNIVERSARY COMMONWEALTH CONTEST

Date of Contest From 1200 UTC on Saturday, March 14, to 1200 UTC Sunday, March 15, 1987.

Eligible Entrants All amateur operators licensed to operate within the British Commonwealth or British Mandated Territories. Entries from GB, aeronautical or maritime mobile will not be accepted.

Contacts A1A only in the 3.5, 7, 14, 21, and 28 MHz bands. Contacts may be made with any station using a British Commonwealth call sign except those within the entrant's own call area. An *additional call area* will be created for this contest only by the operation of a special station using the call sign GB5CC. UK operators may contact this station for the purposes of scoring. All entrants are requested to confine their operation to within the lower 30 kHz of each band except when contacting novice stations that operate above 21.100 and 28.100 MHz. A contact exchange consists of RST and serial number commencing at 001. Serial numbers from non-competing stations, when sent, must be recorded.

Scoring Each completed contact will score five points. In addition, a bonus of 20 points may be claimed for the first, second, and third contact with each Commonwealth call area. All British Isles prefixes (G, GB, GD, GI, GJ, GM, GU, and GW) count as one call area, with the exception of GB5CC as previously mentioned.

Logs A separate log for each band must be submitted and to include UTC, call sign of station worked, RST/serial number sent, RST/serial number received and points claimed. Band totals must be added together and submitted on a separate cover sheet. Duplicate contacts must be clearly marked without claim for points. Any unmarked duplicate contacts for which points have been claimed will be heavily penalised, and logs containing in excess of five will normally be disqualified.

Entries Entries may be single or multiband. Single band entries may show, on separate sheets, contacts made on other bands for checking purposes only. Each entry should consist of the separate bands logs, together with a cover sheet declaration stating that the rules have been observed.

Address for Logs Logs should be sent to RSGB HF Contest Committee, PO Box 73, Lichfield, Staffs WS13 6UJ, England. Adjudication commences on Monday, April 13, 1987 and any entries received after this date may not be accepted. It is suggested to send logs Air mail.

Awards The winner will receive the Senior Rose Bowl, and the runner-up the Junior Rose Bowl. Certificates of merit will be awarded to the first, second, and third placings. In addition, to celebrate the 50th BERU/Commonwealth Contest, special mementos will be awarded to the leading overseas station and to the operator who, in the opinion of the Contests Committee, has contributed most to the BERU/Commonwealth contests during the 50 years history of the contests.

Receiving Section Dates and times as above. Only the entrant may operate his/her receiving station for the contest. Holders of a transmitting license for frequencies below 30 MHz are not eligible to enter.

Scoring To count for points, a station outside the entrant's own call area must be heard in a contest contact. CQ or test calls will not count for points. A station may be logged only once on each band to count for points. When both stations are heard they should be logged separately and points claimed for both entries, provided they are both outside the entrant's own call area. Each completed entry shall score five points. In addition, a bonus of 20 points may be claimed for the first, second, and third station heard in each British Commonwealth call area. British Isles prefixes count as one call area.

Logs A separate log is required for each band. Logs should show time/UTC, call sign of station heard, RST/serial number sent by station heard, call sign of station worked and points claimed.

Entries Each entry should consist of logs for each band, a cover sheet and a signed declaration stating that the receiving station was operated within the rules and spirit of the contest and that the entrant does not hold a transmitting licence for frequencies below 30 MHz.

Address for Logs As in the transmitting section.

Awards The Receiving Rose Bowl to the winner. Certificates of merit to the leading entrant in each continent. Also, as in the transmitting section, a special memento will be awarded to the leading UK SWL to celebrate the 50 years of this contest.

COMMONWEALTH CALL AREAS The following call areas are recognised for the purposes of scoring in the 1987 Commonwealth Contest.

A2	Botswana	VP8	S Shetland Is
A3	Tonga Is	VP9	Bermuda
C2	Nauru	VQ9	Chagos
C5	Gambia	VR6	Pitcairn
C6	Bahamas	V85	Brunei
G*	See note below	VS6	Hong Kong
H4	Solomon Is	VY1 /VE8	Yukon
J3	Grenada	VU	India
J6	St Lucia	VU7	Laccadive Is
J7	Dominica	VU7	Andaman & Nicobar Is
J8	St Vincent	YJ	Vanuatu
P2	Papua New Guinea	Z2	Zimbabwe
S7	Seychelles	ZB2	Gibraltar
T2	Tuvalu	ZC4	Cyprus (UK Bases)
T30	W Kiribati	ZD7	St Helena
T31	C Kiribati	ZD8	Ascension Is
T32	E Kiribati	ZD9	Tristan da Cunha, Gough Is
V2	Antigua, Barbuda	ZF	Cayman Is
V3	Belize	ZK1	Cook Is
VE1	Maritime Provinces	ZK1	Manihiki
VE1	Sable Is	ZK2	Niue
VE1	St Paul Is	ZK3	Tokelau
VE2	Quebec	ZL0	New Zealand
VE3	Ontario	ZL1	New Zealand
VE4	Manitoba	ZL2	New Zealand
VE5	Saskatchwean	ZL3	New Zealand
VE6	Alberta	ZL4	New Zealand
VE7	British Columbia	ZL7	Chatham Is
VE8	North West Territories	ZL8	Kermadec Is
VK1	Australian Capital Ter	ZL9	Auckland & Campbell Is
VK2	New South Wales	3B6 /3B7	Agalega & St Brandon
VK3	Victoria	3B8	Mauritius
VK4	Queensland	3B9	Rodriguez Is
VK5	South Australia	3D2	Fiji
VK6	Western Australia	3D6	Swaziland
VK7	Tasmania	4S	Sri Lanka
VK8	Northern Territory	5B4	Cyprus
VK9L	Lord Howe Is	5H	Tanzania
VK9M	Mellish Reef	5N	Nigeria
VK9N	Norfolk Is	5W	West Samoa
VK9X	Christmas Is	5X	Uganda
VK9Y	Cocos (Keeling) Is	5Z	Kenya
VK9Z	Willis Is	6Y	Jamaica
VK0	Heard Is	7P	Lesotho
VK0	Macquarie Is	7Q	Malawi
VK0/ VP8 /ZL5	Antarctica	8P	Barbados
VO1	Newfoundland	8Q	Maldive
VO2	Labrador	8R	Guyana
VP2E	Anguilla	9G	Ghana
V4	St Kitts, Nevis	9H	Malta
VP2M	Montserrat	9J	Zambia
VP2V	British Virgin Is	9L	Sierra Leone
VP5	Turks & Calcos Is	9M2	W Malaysia
VP8	Falkland Is	9M6/8	E Malaysia
VP8	S Georgia	9V	Singapore
VP8	S Orkney	9Y	Trinidad & Tobago
VP8	S Sandwich Is		

GB5CC RSGB HQ Station
G* denotes G/GB/GD/GI/GJ/GM/GU/GW

ARRL 160m CW CONTEST

This is the 17th year for this top band activity contest to be held from 2200 UTC, Friday, December 5, to 1600 UTC December 7, 1986.

Exchanges will be between Stateside and VE and DX stations. DX to DX contacts, however, are not permitted.

Classes — Single operator and multi-operator.

Exchange — RST and ARRL section; country for DX and ITU region for maritime mobiles.

Scoring — Contacts between stations in ARRL sections count two points, with DX stations five points.

Multiplier — Determined by the number of ARRL sections plus VE8/VY1 (maximum of 74) and DX countries worked (for W/VE participants). DX stations use ARRL sections only.

Final Score — Total QSO points times (X) the ARRL section and DX multiplier.

Awards — Certificates to the top scoring single operator station in each section and DX country, and to the top scoring multi-operator station in each ARRL division and continent.

The ARRL 160 Band Plan requires the W/VE stations to transmit only in the 1.800-1.825 and 1.830-1.850 MHz segments, keeping the *DX Window (1.825- 1.830 MHz)* clear for DX stations. They will indicate where they will be listening for cross frequency contacts.

The usual grounds for disqualification — violation of rules, excessive duplicate contacts, etc — will prevail.

Logs with more than 200 QSOs must include dupe sheets. (A large SASE to the ARRL will usually get the necessary forms to make log keeping for any of the ARRL contests easier).

All entries must be postmarked no later than January 4 and be posted to: ARRL Communications Department, 160 Contest, 225 Main Street, Newington, Connecticut, 06111. USA.

ARRL 10m CONTEST

To be held from 0000 UTC, Saturday December 13, to 2400 UTC, Sunday, December 14, 1986.

This is the 14th Annual 10 metre Contest organised by the ARRL. It is a world-wide activity in which DX stations are permitted to work other DX stations. You are not limited to working W/Ks and VEs only.

The same station may be worked once on phone and again on CW; no cross-mode however, A maximum of 36 hours operating time is permitted out of the 48 hour contest period for all stations.

Categories — Single operator, mixed mode, phone only or CW only. Multi-operator mixed mode only.

Exchange — W/VE stations (including KH6 and KL7) send RS/T and State or Province. DX stations (including KH2, KP4, etc) send RS/T and QSO number starting with 001. Maritime mobiles send RS/T and ITU Region. Novice and Technician stations must identify /N or /T.

Scoring — Phone QSOs are worth two points, CW four points and novice eight points.

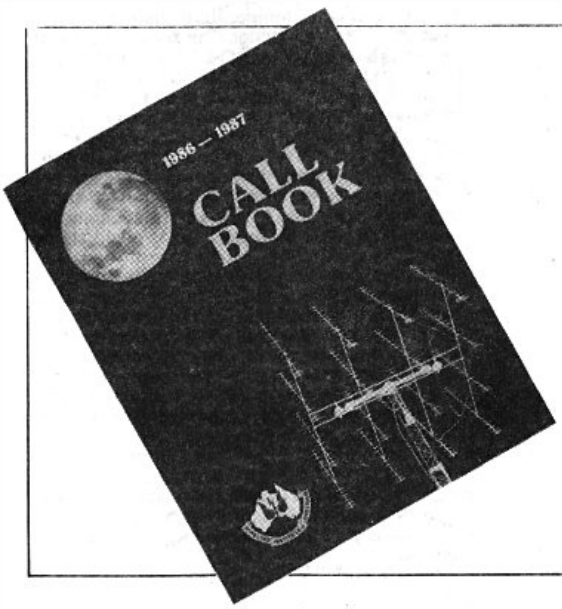
Multiplier — Fifty US States, VE call areas, DX countries and ITU Regions.

Awards — Certificates to the top single operator in each category for each ARRL section and DX country, and to the top multi-operator station in each ARRL division and each continent.

Indicate the multiplier only the first time it is worked. Dupe sheets are required for logs with 500 or more QSOs. The usual disqualification criteria will be observed.

Mailing deadline for all entries is January 18, 1987 to ARRL Communications Department, 10 metre Contest, 225 Main Street, Newington, Connecticut, 06111. USA.

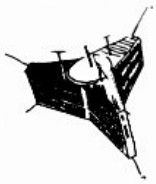
ar



NOW AVAILABLE

THE 1986-87 WIA CALL BOOK IS NOW AVAILABLE FROM DIVISIONAL OFFICES.

PRICE: $6.50 plus post and packing



AMSAT Australia

Colin Hurst VK5HI
8 Arndell Road, Salisbury Park, SA. 5109

NATIONAL CO-ORDINATOR
Graham Ratcliff VK5AGR
INFORMATION NETS
AMSAT AUSTRALIA
Control: VK5AGR
Amateur Check-In: 0945 UTC Sunday
Bulletin Commences: 1000 UTC
Primary Frequency: 3.685 MHz
Secondary Frequency: 7.064 MHz
AMSAT SW PACIFIC
2200 UTC Saturday
14.282 MHz

Participating stations and listeners are able to obtain basic orbital data, including Keplerian elements from the AMSAT Australia Net. *This information is also included in some WIA Divisional Broadcasts.*

ACKNOWLEDGMENTS
Contributions this month are from Bob VK3ZBB, Graham VK5AGR, UoSAT Bulletin Board, and AMSAT-Telemail.

AMATEUR RADIO ON NASA SPACE STATION?

Representatives of NASA, AMSAT and ARRL met recently to begin a long-term program which could lead to amateur radio being a permanent passenger on the NASA Space Station. Members of the Shuttle Amateur Radio Experiment (SAREX) group and others met at the ARRL National Convention in California, to discuss initial ideas for the project. This will be one of the longest projects ever undertaken in amateur radio, taking at least nine years from concept to reality; the Space Station is scheduled to fly in 1995.

The group will develop a plan which would lead to a formal proposal to NASA during 1987. AMSAT-NA will lead the working group for the first steps. Then, when tasks are identified in the proposal effort, ARRL may appoint a task leader and assume the lead role.

One goal of the project is to encourage young people to become involved in engineering, mathematics and science. This has fueled other NASA experiments with amateur radio and amateur satellites, including the previous SAREX projects and the launches of UoSAT-1 and UoSAT-2.

OSCAR-10 RECOVERY EFFORTS

An international group of engineers and command station operators continue attempts to recover AO-10, which has been out-of-control for several months after a memory failure. The failure of the memory crippled the satellite's Integrated Housekeeping Unit (IHU), and commands from the IHU are the only means of controlling satellite subsystems. Without the IHU to perform attitude control manoeuvres, AO-10 will soon enter a period of very bad sun-angles. There will not be enough power available from the satellite's solar panels to keep the battery voltage high enough to operate spacecraft electronics. AMSAT teams are searching for a way to load some limited attitude control software into the IHU, and are also examining ways of making the power-down transition safer.

It is thought that a period without power may allow the failed memory chips to anneal, restoring at least some of the failed memory cells. The period without power, however, may have some adverse effects on AO-10: the batteries will be in a deeply discharged state, and the satellite temperature will be quite low. If the spacecraft goes into this eclipse power-down cycle, recharging of the batteries would begin in November, as sun angles improve. Only then will engineers know whether the satellite has survived.

The team working on the problem includes Ron Dunbar W0PN; Graham Ratcliff VK5AGR; Ian Ashley ZL1AOX; Peter Guelzow DB2OS and Randy Smith VE1SAT.

MEMORY IMPROVEMENTS FOR PHASE-3C

Harris Corporation of Melbourne, Florida, has agreed to supply AMSAT with special memory modules for its Phase-3C spacecraft. The modules are especially radiation-hardened and qualified for use in space. The new Harris modules, valued at $80 000 are produced by Harris' Custom Integrated Circuit Division in Melbourne. They will supply the IHU with 32 kBytes of reliable memory.

Gordon Hardman KE3D, is building a new IHU memory board for Phase-3C. This board must be operationally identical to the one already installed in the satellite, but it must use the new Harris ICs. The new assembly will then be delivered to Germany and integrated with the satellite, which will soon undergo further vibration and thermal testing.

With 32k of IHU memory, the Phase-3C IHU could support features similar to the UoSAT Bulletins and WOD.

Current launch schedule for Phase-3C is August 1987. No firm date has yet been established.

UOSAT-OSCAR-9 IS FIVE-YEARS-OLD

UoSAT-OSCAR-9 was launched successfully by NASA on October 6, 1981 on board a Delta 2310 rocket from the Western Test and Missile Centre, Vandenberg Air Force Base, California, at 1127 UTC, into a 554 km, 95 minute, polar, sun-synchronous Earth orbit. The satellite had taken 30 months to design, build and test, ready for launch. Shortly after separation from the Delta launch vehicle, the spacecraft primary VHF data beacon was switched on and telemetry data received at the control station in Surrey. The satellite's first transmissions were also monitored eagerly by hundreds of radio amateurs around the world. Since then, many thousands of radio amateurs; school, college and university groups and other interested individuals in many countries have participated in the technical challenge of receiving, decoding and analysing the housekeeping and experimental data transmitted by the spacecraft.

UoSAT-1 experienced some difficulties between April and September 1982, when both downlinks were inadvertently activated, blocking the command uplinks. This problem was completely overcome with the assistance of the Stanford Research Institute, USA.

UoSAT-1 now operates a regular series of daily experiments scheduled automatically by the OBC. The OBC schedule is loaded every two weeks by the Surrey Ground Control Station.

It is, perhaps, appropriate to summarise the mission objectives established when the project commenced:

1 To investigate the feasibility of, and the problems associated with, the design, construction, test and launch of a relatively small, inexpensive yet sophisticated spacecraft capable of a significant contribution to the engineering, scientific, educational and amateur radio communities.
2 To stimulate and promote a greater awareness of, and interest in, space engineering and science in schools, colleges and universities by direct, active participation in the satellite experimental program. The satellite engineering and experiment data are transmitted in such a manner that they are readily received by, not only professional ground stations, but also simple, low-cost amateur ground terminals.
3 To broaden the scope of the Amateur Satellite Program by catering for the interests of the amateur 'experimenter/scientist' in addition to traditional amateur radio communications.
4 To evaluate the use and performance of novel technologies, spacecraft systems architectures and cost-effective spacecraft engineering techniques to provide a lower cost entry level into space activities.

The UO-9 mission has proved a remarkable success and the spacecraft continues to perform extremely well with no significant degradation thus far detected. The mission has experienced its 'ups and downs,' but each difficulty has been overcome by perseverance resulting in 'better' spacecraft operations and facilities. Indeed, sustained effort on spacecraft on-board computer software and ground control station facilities have resulted in enhanced performance from the spacecraft over the last year!

The UoSAT Team at UoS wish to thank the thousands of experimenters world- wide who have sent in reports, experiment results, suggestions and general support for the mission — not forgetting those who helped us through difficult times!

At five years, UoSAT-1 is the longest living operational satellite in the Amateur Radio Satellite Service.

OSCAR-10 HISTORICAL REPORT

Three Years of Operation with AMSAT OSCAR-10
A Detailed report
by Karl Meinzer DJ4ZC

AMSAT/DL Journal, September/October 1986
(translated by Don Moe DJ0HC/KE6MN)

1 Introduction

AMSAT OSCAR-10 was launched on June 23, 1983 and is the first "Phase-3" satellite in space; its predecessor, P3-A, was lost in 1980 due to a launch failure. Compared to all previous AMSAT satellites, a completely new satellite architecture is employed in the P3 satellites, which represents a significant advance in cleverness and technology. As a matter of course, several risks were also intrinsic to this technological advance; we had therefore estimated the lifetime of the first P3 satellites at three years. In these three years, OSCAR-10 has significantly enriched amateur radio despite many adversities and has reinforced our opinion that this is the correct path to follow. Unfortunately, several problems in OSCAR-10 are now occurring that give cause to believe that its days are numbered. This report will describe in detail what we have learned to date from the P3 project.

2 Failures in the satellite

In a report of this nature, it is appropriate to initially describe the failures that have occurred in the satellite. More important however, is the analysis which would prevent reoccurrence of these problems. In the following enumeration, the presumed causes (P) and the necessary consequences (N) for subsequent satellites will be discussed.

a) Failure of the temperature sensor in the U-transponder's transmitter. The sensor, as are all temperature sensors in AO-10, is a YSI-44203-NTC combination, which consists of two NTC resistors integrated in a bead and which must be supplemented with a resistor in our circuit.

The temperature range is practically linear between -30 and +50 degrees Celsius, and an individual alignment of the channels is not necessary. After 2.5 years of operation, the sensor in channel 06 suddenly indicated significantly too low temperatures, although changes could still be seen.

P A comparison of the indicated temperature values with the probable temperatures from previous operation has lead to the conclusion that the defect was caused by section T2 of the sensor becoming electrically non- conductive.
N The failure appears to be caused by a chance material breakdown. Since our experiences with the sensors are otherwise quite good, there are no consequences.

b) Antenna relay for the 24 cm antennas. During initial operation of the L-transponder, the relay in the arm of the 24 cm directional antenna had over 10 dB attenuation. After the relay was actuated approximately 10 times, a faultless contact was achieved.

P Since practically no current flows through the relay contacts in the case of the receive antennas, the danger of a high contact resistance always exists. The relays have gold-plated contacts and therefore should not have this problem. If, however, impurities are present in the relay, especially at the relatively low temperatures in our satellite, problems can occur.

N In principle, a small DC current could be routed through the contacts. Because we were able to solve the problem by repeater switching, we have decided not to make any changes. Since the relays are practically handmade for the space industry, the danger always exists that a lot of money is paid for a component which does not have the manufacturing maturity of a mass- produced item. Unfortunately, we do not have any alternative.

c) Final amplifier of the L-transponder. Upon initial operation of the L-transponder, the amplification was too little, the output power too low, and the typical distortion of Class-C amplifiers was apparent.

P Analysis of the telemetry data, especially of the currents, has indicated that quite likely the voltage converter for the final amplifier bias has failed. The converter uses two JAN-TX 2N2907A transistors, which come from a space project of NASA. Presumably, one of these transistors has developed an open junction.

N For the same reason, the command detector in P3-A had failed in Kourou. We have subsequently rejected all of these transistors for future projects. The possibility exists that the transistors are "tested to death" in insane acceptance tests. This case has again lead to considerable discussion whether it is really wise to use special militarily qualified components or whether good quality mass-produced items would not be better. It is indeed indicative that in all our failures the "MIL" components are involved, even though we have employed very few of them in out satellites. By the way, the new L-transponder has an entirely different final stage design without a bias voltage converter.

d) Helium bottle seal

Immediately following initial operation of the 400 N motor in OSCAR-10, the helium pressure fell so much that a second ignition of the motor was no longer possible.

P According to telemetry data for the helium high and low pressures, a leak occurred on the high pressure side, causing the gas loss. Probably the screw seal of the helium bottle became loosened so much through the temperature cycles, as a result of the collision following the launch, that the gas could escape.

N For the helium bottle of P3-C, a further sealer was employed in addition to the tin gasket. Tests have indicated that the resistance to temperature cycles is thereby improved. The original seal of the bottle was only designed for 200 bar; at the 400 bar used, another design would be better. Unfortunately, only bottles of the type we use are available.

e) Antennas

Several antenna rods were presumably bent as a result of the collision after launch. The ESA has undertaken all necessary steps to prevent collisions in the future. P3-C additionally has flexible two metre antennas which are not as easily bent. However, damage during a collision is nearly unavoidable; the energy absorbed by the antennas probably prevented damage to the solar cells.

f) LIU

The module for operating the propulsion system (LIU) has a design error such that the ignition time values were incorrectly interpreted by the computer. Thus OSCAR-10 reached the high perigee of 4000 km. This problem could have been solved in software; however, due to space limitations, the LIU has been redesigned, and the crossed lines also corrected at this time.

g) Sun sensor

Operation has indicated that the sun sensor sensitivity must be set very exactly; slight variations cause either a mis-triggering or double triggering.

P The problem is not correctly understood at this time; from the statically recorded graphs, the phenomenon cannot be understood.

N We are presently still building a sun sensor for further tests. These should then indicate which measures should be taken in P3-C.

h) Thermal design

The thermal design of AO-10 was conducted in the USA on a large computer. Just prior to launch, a rough manual calculation indicated that the design would have lead to a much too cold satellite. Measures were taken prior to launch to bring the temperature as far as possible up to the desired temperature of 10 degrees Celsius. In fact, the possible measures were only sufficient enough to raise the temperature to five degrees Celsius. Experience has shown however, that we can live with this value and changes are not planned. Merely the fuel lines to the motor and the battery design have been reworked, in the first case to prevent freezing of the fuel and in the second, to reduce the gradient.

In addition to the above problems, further difficulties have arisen after a long period of operation, indicating a kind of wear due to the high radiation exposure in our orbit, though in principle, they were to be expected.

a) Solar generator

Since the solar cells are mounted on the external skin of the satellite, a larger power decline is unavoidable. The solar cells have a 0.5 mm thick glass cover for shielding. Calculations predicted a 40 percent decline in power in three years. In fact, the power declined 12 percent in six months and around 24 percent in three years. After six months, we reduced the input voltage of the generator two volts compared to the optimal values prior to the launch (29 mV per cell) and have operated with this setting unchanged to this day. The power decline data are referenced to this setting. The solar generator from AEG-Telefunken has exceeded our expectations and can be employed without changes even for missions of significantly longer duration in an elliptical orbit. It may be that an adjustment of the operational voltage after approximately three years would even lead to a small increase in power.

b) BCR

The battery charge regulator receives its voltage settings for the solar generator and battery voltage from the board computer, which sets them depending on temperature. The BCR contains D/A converters whose outputs are routed into the control loops for the voltages. There are two redundant regulators present, although the D/A converters are single. The D/A converters are connected to the regulators through 270k ohm decoupling resistors to eliminate mutual interaction. The input current of the operational amplifier in the regulators has increased in the three years to approximately 1 uA, thereby causing drift. In P3-C, the decoupling resistors must be reduced in value to avoid this drift. In AO-10 the drift is compensated for through corresponding software parameters.

c) The memory of the board computer

There are 12 dynamic 4116 memories flying in

OSCAR-10 APOGEES — DECEMBER 1986

			SATELLITE APOGEE CO-ORDINATES			BEAM HEADINGS SYDNEY		ADELAIDE		PERTH	
DATE	DAY NO	ORBIT NO	UTC HHMM:SS	LAT DEG	LON DEG	AZ DEG	EL DEG	AZ DEG	EL DEG	AZ DEG	EL DEG
1	335	2608	1621:26	-7	282	274	10	282	20	297	41
2	336	2610	1540:28	-7	272	279	18	288	28	308	48
3	337	2612	1459:31	-7	263	286	26	296	36	321	54
4	338	2614	1418:34	-7	254	293	33	306	43	339	59
5	339	2616	1337:36	-7	244	302	41	318	49	360	60
6	340	2618	1256:39	-7	235	313	48	333	54	21	59
7	341	2620	1215:41	-7	225	327	53	352	57	38	54
8	342	2622	1134:44	-6	216	345	57	11	56	52	47
9	343	2624	1053:44	-6	207	4	58	29	53	62	40
10	344	2626	1012:46	-6	197	24	55	43	48	70	32
11	345	2628	0931:49	-6	188	39	51	55	41	76	24
12	346	2630	0850:52	-6	179	52	44	64	34	82	15
13	347	2632	0809:54	-6	169	62	37	71	26	87	7
14	348	2634	0728:57	-6	160	69	29	78	18	92	-1
15	349	2636	0647:59	-6	151	76	21	84	10		
		2637	1827:31	-6	326					270	1
16	350	2638	0607:02	-6	141	82	13	89	2		
		2639	1746:33	-5	317					275	9
17	351	2640	0526:04	-5	132	87	5				
		2641	1705:36	-5	307			268	-2	280	17
18	352	2642	0445:07	-5	122	92	-3				
		2643	1624:38	-5	298			273	5	286	25
19	353	2645	1543:41	-5	288	271	3	279	13	293	33
20	354	2647	1502:43	-5	279	277	11	285	21	302	41
21	355	2649	1421:46	-5	270	283	18	292	29	313	48
22	356	2651	1340:49	-5	260	289	26	301	36	328	54
23	357	2653	1259:51	-5	251	297	34	311	43	345	57
24	358	2655	1218:54	-5	242	307	41	324	49	6	58
25	359	2657	1137:56	-4	232	318	47	339	53	25	55
26	360	2659	1056:59	-4	223	333	52	357	55	40	50
27	361	2661	1016:02	-4	214	351	55	15	53	52	44
28	362	2663	0935:04	-4	204	9	55	31	50	62	36
29	363	2665	0854:07	-4	195	27	52	45	44	69	28
30	364	2667	0813:09	-4	185	41	47	55	38	76	20
31	365	2669	0732:12	-4	176	53	41	64	30	81	12

SATELLITE ACTIVITY FOR THE MONTH OF AUGUST 1986

1. LAUNCHES

The following launching announcements have been received:

INTL NUMBER 1986	SATELLITE	DATE	NATION	PERIOD min	APG km	PRG km	INCL deg
058A	Cosmos 1768	Aug 02	USSR	89.2	303	199	82.6
059A	Cosmos 1769	Aug 04	USSR	93.3	456	438	65.0
060A	Cosmos 1770	Aug 06	USSR	89.0	302	189	64.8
061A	EGP	Aug 12	Japan	115.7	1508	1490	50.0
061B	JAS-1	Aug 12	Japan	115.7	1506	1488	50.0
061C	MABES	Aug 12	Japan	116.0	1500	1500	50.0
062A	Cosmos 1771	Aug 20	USSR	na	na	na	na
063A	Cosmos 1772	Aug 21	USSR	90.0	370	210	90.0
064A	Cosmos 1773	Aug 27	USSR	89.7	366	181	64.9
065A	Cosmos 1774	Aug 28	USSR	11hr49	39342	614	62.8

Cosmos 1771 (like Cosmos 1736) is a nuclear reactor powered reconnaissance spacecraft. It carries large radar antenna to monitor movements of sea-going vessels. On completion of its mission, the nuclear reactor section is boosted to a higher orbit of about 105 minutes period.

2. RETURNS

During the month 40 objects decayed including the following satellites:

1986-043A	Cosmos 1756	Aug 04
1986-054A	Cosmos 1765	Aug 07
1986-056A	Cosmos 1767	Aug 16
1986-058A	Cosmos 1768	Aug 16

AO-10, which at the time of development of P3-B were the best available memories. Since temporary errors can occur in dynamic memories due to particle radiation, the 12 bits are so employed that in each eight bit word of the computer single errors can be corrected. The software reads and writes the memory every five minutes, thus preventing an accumulation of errors. Even at the time of development, it was clear that this memory in AO-10 would only survive the radiation for approximately three years; unfortunately nothing better was available.

The memory functioned as planned until November 1985 (two and a half years) and corrected about three errors daily. This was no problem and corresponded to our expectations. In November, the counter, which tallies the corrections, began to run very fast. In May 1986, the first "crash" of the computer came to pass.

At that time, a memory test indicated that a column decoder (XX01 and XX81) was defective and that throughout the entire memory errors are distributed, with accumulations "high" and "low." Subsequently, the software was reworked such that positions 01 and 81 are excluded and that the entire memory is read and rewritten in 20 second intervals. This measure has, to date, (August 10, 1986), restored nearly normal operation. However, ever more errors are meanwhile occurring in the K, L, M and N blocks; the memory is becoming increasingly worse, such that the service life of AO-10 cannot be expected to last much longer. A "harder" memory should definitely be used in P3-C; all other systems in AO-10 would most certainly achieve a service life of six to 10 years.

3 Ground systems and software

In contrast to all previous satellites of AMSAT, the P3 satellites have a board computer which is responsible for control. As a consequence, command systems of the old type no longer exist and a dialogue with the board computer has taken their place. After three years operation with this system, there no longer exists the slightest doubt that this is our path into the future. The conversion has not happened quite as painlessly, however, as we had hoped. The command operation of the old type could be distributed "to the folks" by shipping a bale of paper. Initially we also attempted to distribute the P3 technology in this manner and leave the details of their installations to the command stations.

Unfortunately, this concept was a failure; the majority of the stations were not really operational at the time of the launch. One of the biggest problems turned out to be that the S-100 computers, in primary use by Americans, created such a strong interference level on two metres that error-free telemetry reception was not possible. It also became apparent that the training of the people was inadequate. A command training seminar was therefore held in Marburg approximately one year after the launch of AO- 10. At the same time as this meeting, the price of the Atari 800XL computer fell so far that all command stations acquired the same equipment as used in Marburg. Meanwhile, the ground software had become so powerful that one of these computers was adequate for a normal command station. Originally three computers were necessary. Now that we train the amateurs who will be operating command stations every one to two years, the P3 technology has become quite manageable.

4 Outlook

Due to the enumeration of the many problems, the impression could be imparted that we do not yet quite have a thorough grasp of the P3 technology. In fact though, AO-10 is the AMSAT satellite that has functioned with the fewest problems to date, despite all the adversities. Especially the technology of the board computer and the 400 Bit/s synchronous data transmission have played a significant part in immediately allowing us to control this complex satellite with its active attitude regulation, its dual fuel rocket motor, and a plethora of technological innovations. There can be no doubt that here we have selected a path indicative of the future; even the operators of commercial satellites envy us.

SEASONS GREETINGS

To the readers of this column I extend to you all Seasons Greetings and a Prosperous New Year, and I look forward to your continued support in 1987.

—de Colin VK5HI

ar

Thumbnail Sketches

Alan Shawsmith VK4SS
35 Whynot Street, West End, Qld. 4101

In the photograph, alongside Harry VK4HA, is Al VK4SS. Both obtained their AOCPs together in August 1935. After a total of 102 years of radio there were endless stories to swap, with much nostalgia. (The meeting was arranged by courtesy of Roy VK4BAY).

HARRY B ANGEL VK4HA
— The oldest Active Amateur

In the accompanying photograph, holding a vintage microphone (1935) is Harry VK4HA, who looks and sounds much younger than his 95 years.

Born in England, he sailed around the Horn while still in his teens as an AB (Able Seaman) in a windjammer. Being young and active, his job was to furl the top sails. Eventually, after a look at the USA, he reached VK and put down his roots. It was from Down Under that he enlisted and served in two world wars.

A feature of Harry's first years in amateur radio was his well-organised Sunday morning DJ Broadcast on 80 and 40 metres. He established a large listening audience and received many excellent SWL reports for his work.

Like so many other amateurs he successfully conducted his own radio service business for many years at Toowong, Brisbane. Harry has now retired to Lota, a bayside suburb of Brisbane. He can be found almost daily on the bands working DX in open competition.

ROY KERR VK4DK

Roy obtained his AOCP at Winton, in 1935. He was very active pre-WWII from this Central Queensland town. Post-war, Roy moved to Tingalpa, Brisbane and continued in amateur radio using war disposals gear.

A PMG telegraphist by vocation, VK4DK was a 'gun' brass pounder, his code being used on OTC radio links. He retired in 1967.

Roy lists his other hobbies as growing champion gerberas for show, likes shooting and fishing — with silver coins (his own cryptic description). Does he mean he likes playing the 'one arm bandits?'

Pre-WWII, Roy's brother Vern VK4LK, operated the Flying Doctor Base Station, VJI, at Cloncurry. Roy used to QSY his rig to the frequency of VJI and hold regular scheds and rag chews with brother Vern. Eventually, the Radio Inspector became aware of this — he was not amused!.

ar

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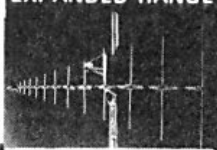

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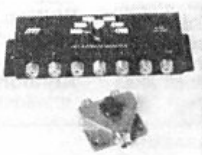

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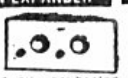
MFJ-202B



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Debeglass	2.5	3.9	430	3.0	5.9	560
Steel wire	1.6	5.6	370	3.15	9.9	530

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Listening Around

Joe Baker VK2BJX
Box 2121, Mildura, Vic. 3500

Forty years have passed since many of the events on Morotai Island in wartime took place, and although I am now a service pensioner aged 69, I still have a pretty good recall of what happened there when I was a member of the Australian Press Unit, which printed the Army Island Newspaper *Table Tops,* and later, the Broadcasting Station 9AD.

WHAT ARE THE MOST OUTSTANDING MEMORIES OF THOSE DAYS?

I remember that President Roosevelt died the same day we arrived at Morotai on the American ship, the *Frederick C Ainsworth,* which had collected us at Brisbane after being kitted-out and vaccinated at Logan Village and Strathpine. We received the news soon after 6 am whilst we were below decks awaiting a disembarkation order. This is how I know the exact day we arrived.

I remember being present at one of the war trials that were held on Morotai soon after the Pacific war ended. It was not a pleasant experience.

I also recall listening by radio to General McArthur, on board the *Missouri* in Tokyo Bay, when he accepted the formal surrender. I was also present at the surrender on Morotai itself, accepted by General Blamey.

MONKEYING AROUND

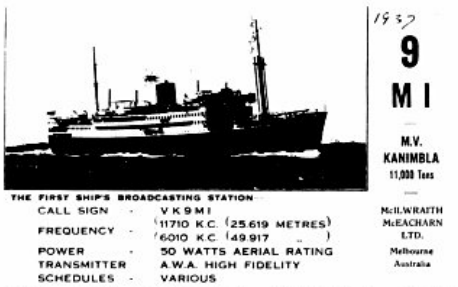
Other memories come flooding to me also. Like the day a Borneo monkey, which was one of my mates pets, discovered an 807 valve that I had acquired and took it to the top of a tree near my tent. There he was, perched on a limb with 807 in his hand, grinning like the monkey that he was, and acting as if to drop it while I stood shaking my fist, far below. Eventually he did drop it but it fell on soft ground and fortunately did not smash!

The same monkey also had a great liking for anything shiny, such as mirrors, and he would purloin these given the opportunity if the boys left them laying around. One day we returned to our tent to find the monkey looking rather "green around the gills" or whatever monkeys look like when they are not too well! It appeared that he had taken a shine to someone's Atebrin tablets and he looked so sick we thought he would die. But Borneo monkeys are tough little animals and he survived.

I was on Morotai for about nine months, but I packed more into that nine months than I have done since in a lifetime!

When 1946 arrived we were still on Morotai. We were advised that there were no ships available to bring us home, so the troops amused themselves with varying pastimes. Some raided a nearby aircraft dump to get plastic to make souvenirs to sell to the Americans or to send home. Another chap and I used to frequent this dump to locate wire and other bits and pieces so we could repair radios for the BCOF troops, who were passing through on their way to Japan. We were paid in Dutch Dollars.

Eventually, the time arrived for us to leave. The broadcasting station and newspaper had closed down for the last time, many units had already departed, and Morotai was beginning to look somewhat forlorn.



QSL card received by VK3OZ, in 1937. Written on the back of the card: Thanking you for your letter and report on Marine Station 9MI. Yours faithfully, Eileen Foley, Announcer-in-Charge.

HOMEWARD BOUND AT LAST

At last the ship arrived to bring us home. It was the motor vessel *Kanimbla* of the McIlwraith McEacharn line, formerly a passenger ship on the Australian coastal run, but now a troopship. The *Kanimbla* had a special significance for me as a prewar shortwave listener, because it had a broadcasting station on board, and I used to listen to concert broadcasts from the ship as she traversed the coast.

Bert Shire VK3OZ, 81 years old and now of Mildura, was also a shortwave listener at that time, and sent the ship's radio operator a signal report in 1937. In due course he received a QSL card from the Announcer-in-Charge, Eileen Foley. Eileen's card thanked Bert for his report and gave some details of the frequencies and power used by this marine station.

Call Sign — VK9MI
Frequency — 11710 kc (25.619 metres) and 6010 kc (49.917 metres)
Power — 50 watts aerial rating
Transmitter — AWA High Fidelity

Bert was kind enough to supply me with a photocopy of the card. It is also interesting to note that 9MI claimed to be the first ship's broadcasting station. Isn't it a pity there are not some of them still around today. It would surely add to the joys of shortwave listening.

I am sorry I have missed so many deadlines but this time I am just in time to wish all Season's Greetings and say thank you for the many kind words that you have made to me personally on air.

My story is only one of many that could be told if only others would put pen to paper and so related their experiences during WWII.

There is much more to come about my experiences in the immediate postwar years when, like so many ex-servicemen, I found it difficult to settle back into civilian life and I had to fight this other kind of war in which I found myself involved.

A very Happy Christmas and 73 to all readers — Joe VK2BJX.

ar

ELECTRICITY

Today's scientific question is: What in the world is electricity? And where does it go after it leaves the toaster?

Here is simple experiment that will teach you an important electrical lesson: on a cool, dry day, scuff your feet along a carpet, then reach your hand into a friends mouth and touch one of his dental fillings. Did you notice how your friend twitched violently and cried out in pain? This teaches us that electricity can be a very powerful force, but we must never use it to hurt others unless we need to learn an important electrical lesson.

It also teaches us how an electrical circuit works. When you scuffed your feet, you picked up batches of "electrons," which are very small objects that carpet manufacturers weave into carpet so that they will attract dirt. The electrons travel through your bloodstream and collect in your finger, where they form a spark that leaps to your friends filling, then travel down to his feet and back into the carpet, thus completing the circuit.

Amazing electronic fact: if you scuffed your feet long enough without touching anything, you would build up so many electrons that your finger would explode! But this is nothing to worry about unless you have carpeting.

Although we modern persons tend to take our electric lights, radios, mixers, etc for granted, hundreds of years ago people did not have any of these things, which is just as well because there was no place to plug them in. Then along came the first electrical pioneer, Benjamin Franklin, who flew a kite in an electrical storm and received a serious electrical shock. This proved that lightning was powered by the same force as carpets, but it also damaged Franklin's brain so severely that he started speaking only in incomprehensible maxims, such as, *a penny saved is a penny earned.* Eventually he had to be given a job running the post office.

After Franklin came a herd of electrical pioneers whose names have become part of our electrical technology: Myron Volt, Mary Louise Amp, James Watt, Bob Transformer, etc. These pioneers conducted many important electrical experiments — among them, Galvani discovered (this is the truth) that when he attached two different kinds of metal to the leg of a frog, an electrical current developed and the frog's leg kicked.

The greatest electrical pioneer of them all was Thomas Edison, who was a brilliant inventor despite the fact he had little formal education. Edison's first major invention in 1877, was the phonograph, which could soon be found in thousands of American homes, where it basically sat until 1923 when the record was invented. But Edison's greatest achievement came in 1879, when he invented the electric company. Edison's design was a brilliant adaption of the simple electrical circuit: the electric company sends electricity through a wire to a customer, then immediately gets the electricity back through another wire, then, (this is the brilliant part) sends it right back to the customer again.

This means that an electric company can sell a customer the same batch of electricity thousands of times a day and never get caught, since very few customers take the time to examine their electricity closely. In fact, the last year any new electricity was generated was 1937; the electric companies have been merely reselling it ever since, which is why they have so much time to apply for rate increases.

Today, thanks to men like Edison and Franklin, we receive almost unlimited benefits from electricity. For example, in the past decade scientists have developed the laser, an electronic appliance so powerful that it can vaporise a bulldozer 2000 metres away, yet so precise that doctors can use it to perform delicate operations to the human eyeball, provided they remember to change the power setting from "Vaporise Bulldozer" to "Delicate."

So anyway, next time you get a bill from the electric company, just send it right back, with an attached note explaining, "Haven't seen it all month!"

—Contributed by Len Pearson VK3LP

Australian Ladies Amateur Radio Association

Joy Collis VK2EBX
PUBLICITY OFFICER, ALARA
Box 22, Yeoval, NSW. 2868

WHY XYL?

I have received an interesting letter from Lloyd VK2VZB, regarding the use of *XYL* for wife. Lloyd says that many amateurs consider XYL inappropriate terminology because, to quote from his letter, "They are still young to us."

He further states that these "oldies" who dislike the term XYL use *GL* (Good Lade) instead.

Well Lloyd, on the other side of the coin, we use the expression *OM* even if the gentleman we are referring to is in his early 20s, but there is a lot to be said for your idea, and "good lady" certainly has a pleasant, old-worldish ring to it; there is food for thought there!

Lloyd grew up with Morse, and knew Mrs Florence McKenzie many years ago. He says:

"Why not promote GL to the fraternity and give wives of amateurs a status? I am sure Mrs Mac would agree — I had the privilege of being associated with that VGL in 1939/40. Having been an ex-Army Cadet Signals we had a little in common. AWA York Street conducted the first RAAF radio op training school and our lunch was supplied by Mrs Mac at her Sussex/Kent Street rooms. We used to march from York Street to these rooms, which were set up with benches with Morse training facilities."

Thank you for your comments and reminiscences, Lloyd.

Maybe *XYL* does conjure up visions of the little woman clad in dowdy clothes and voluminous apron, surrounded by wailing children, piles of washing and dirty dishes in the sink while the OM sits serenely in his shack and works the world, (or the OM down the road!).

Surely this scenario is somewhat inapt for this day and age, when more and more women are becoming actively involved in the world of amateur radio.

Fortunately for us, the general term for a female amateur radio operator is *YL*, whether she be nine or 90. *YL* appears on the ALARA logo, badge, stickers, etc, and is in fairly general usage throughout the world.

XYL or *GL* for wife? Can tradition be changed anyway? Comments welcome!

YL CONTESTS

YL-OM MIDWINTER CONTEST

The English YL club, BYLARA; the Belgium club, BYLC; the Dutch club, DYLC; and the Italian YL club, YLRC, organise this contest.

DATE — the weekend January 10 and 11, 1987.

CW Saturday, January 10, from 0700 UTC to 1900 UTC

Phone Sunday, January 11, from 0700 UTC to 1900 UTC.

BANDS — all bands. Please use band-sections according to IARU recommendations for Region 1.

CW and SSB (no cross-mode).

EXCHANGE — station worked RS/T and QSO-serial number. OMs start at 001; YLs start at 2001, Country. Entry in log must also show time, band, date, YL or OM, number of multiplier.

POINTS — each QSO with a YL, confirmed, counts as five points. Each QSO with an OM counts as three points.

SWLs — each different heard YL station counts as five points, multiplier as below. Logs must also show the foreign station worked with.

MULTIPLIERS — one point for every worked DXCC country. Multipliers are counted only once in the contact; it is not counted on each band.

AWARDS — a certificate will be awarded to the YL and OM winner in each category and also to second and third classified stations. Certificates will also be awarded to each country winner in each category.

LOGS — to be sent no later than February 20, to Dieuw Wildeboer PA3CEB, Kettingweg 3, 8281 PN Genemuiden, The Netherlands.

YL-OM CONTEST
Sponsored by YLRL

Phone starts Saturday, February 14, 1987 at 1400 UTC and ends on Monday, February 16, 1987 at 0200 UTC.

CW starts Saturday, February 28, 1987 at 1400 UTC and ends on Monday, March 2, 1987 at 0200 UTC.

OPERATION — all bands may be used. No cross-band operation. Net contacts and repeater contacts do not count. A station may be counted only once in each contest for credit. Participants may work only 24 hours of the time.

EXCHANGE — station worked, QSO number, RS/T, state/province/country. Entries in log must also show time, band, date and transmitter power.

SCORING —

a Phone and CW will be scored as separate contests. Submit separate logs for each contest.

b One point is earned for each different station worked: YLs count only OMs and OMs count only YLs.

c Multiply the number of QSOs by the total number of different states/provinces/countries worked.

d Contestants running 150 watts or less on CW and 300 watts PEP or less on SSB may multiply the results of c by 1.25.

LOGS — must be signed by the operator and no logs will be returned. Remember to file separate logs for each contest. Logs must show claimed score and be postmarked by March 16, 1987, and received no later than March 31, 1987. Please send logs to: YLRL Vice-President, Mary Lou Brown NM7N, 504 Channel View Drive, Anacortes, WA 98221, USA.

ALARA AWARD

Award No 120, July 31, 1986 to T K Morrison VK3DVZ.

Our Award Custodian has been receiving award applications which do not comply with the rules; eg $2 enclosed instead of $3, unsigned, not certified by two other amateurs, etc.

It seems unfortunate that awards have to be refused on these grounds, particularly in these days of rising postal charges. Please check the rules carefully before forwarding an award application to avoid disappointment. Rules have been well publicised.

SUBSCRIPTIONS

It is that time of the year again, and subscriptions are due once more. Please do not forget sponsored members.

$6 Australian member (full or associate) and subscriber.

$6 Air mail overseas member or sponsored.

$4 Surface mail overseas member or sponsored.

Please send subscriptions to our new Treasurer, Val Rickaby VK4VR, 3 Dulcie Street, Salisbury, Qld. 4107.

It was very enjoyable on a recent trip to Victoria to meet Daphne VK2KDX. We have got to know each other via amateur radio over several years, but this is the first time we had actually met. Naturally, there was much talk and plenty of cuppas before the OM finally managed to drag me away to continue our journey. It is good to meet an "old" friend for the first time, isn't it!

I would like to wish everyone a very Happy Christmas, and all the blessings of the Festive Season.

See you in 1987!

73/33, Joy VK2EBX.

IAN J TRUSCOTTS

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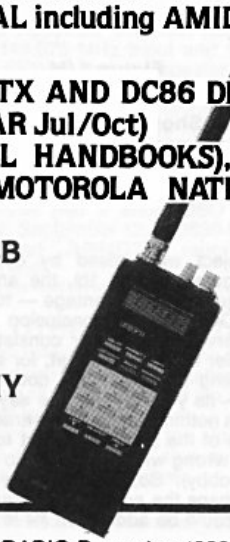
- UNIDEN SCANNING RECEIVERS
- COMPUTERS
- WELZ TP-25A 50-500 MHz DUMMY LOAD — POWER METER



Education Notes

Brenda Edmonds VK3KT
FEDERAL EDUCATION OFFICER
56 Baden Powell Drive, Frankston, Vic. 3199

AUSTRALIA'S YOUTH — AND THE AMATEUR SERVICE — 1986 — AND THE NEXT 10 YEARS

Guest Writer: Danny McManus VK3NG

While recently addressing a radio club in VK3 on what was a "potpourri" of amateur radio, several lines of thought were brought to light that provide a basis for this article.

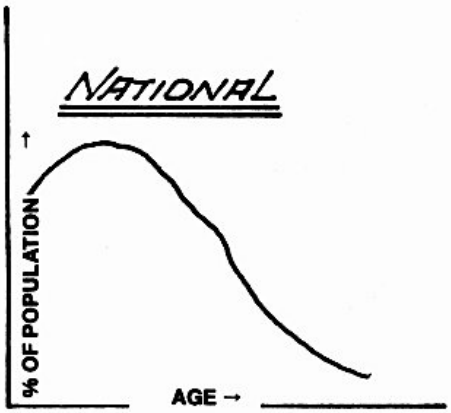


Figure 1 (a).

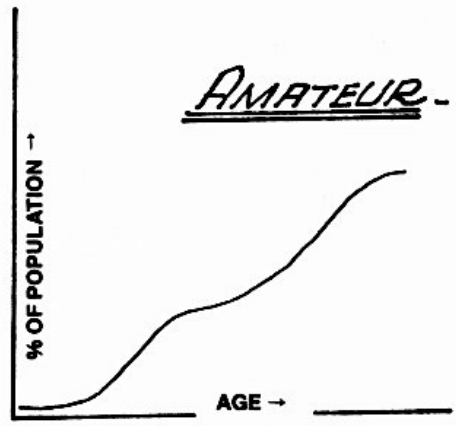


Figure 1 (b).

Figures 1 — Show (a) Age as a percentage of total national population versus (b) Age as a percentage of amateur population in Australia.

The subject was raised by comparing two graphs (Figures 1a and 1b), the amateur population — age versus percentage — to the national average. One glaring conclusion is that the amateur service attracts or consists of middle-aged or older citizens and that, for some reason, we are failing to attract this country's greatest resource — its youth — (let me say at this point that there is nothing wrong with attracting an older percentage of the population, but to me there is something wrong with our failure to attract youth into our hobby). So, why have we apparently failed? Perhaps the advent of cheque book amateur radio could be addressed (or is it credit card amateur radio?). Table 1 shows current? prices for a small range of popular radio gear and the question posed is *how many 16 year olds can afford that lot?*

Table 1 — What 16 year old can afford this:

IC-731	RRP $1554
FT-757	RRP $1295
FT-209RH	RRP $469
"Down Market" perhaps:	
80 metre transceiver	$350
or Rotators from	$280 to $500
or Triband Beams just	$429
even Cheap Verticals at	$150
and Coaxial Cable a mere	$180 per roll
Secondhand?	
IC701	$700
FT7B	$400
FT101	$480
TS520	$450
TOTAL?	$2000 plus perhaps?

The response often forwarded is *get them started with simple CW gear on 80,* or *they can afford computers so they can afford radio gear.* Both responses show conservative and backward thinking. How many people reading this article are 80 metre CW operators only, or would be happy to be? And, how many of you are 16 years old? A 16 year old would see this as a move back to the ark. Because it was good enough for you 30 years ago does not mean the logic still holds. The second point may be valid, but as VK2ZTB and VK3PC point out in their AR article, if Personal Computers are where the interest of today's youth lies then we must move to accommodate this interest — not stand off and adopt the attitude that we will accommodate them when they come to us on our terms. And, of course, many of today's youth cannot afford Personal Computers either. In the school where I teach, the student population of 650 probably boasts fewer than 15 to 20 Personal Computers. If we are genuine in our belief that amateur radio is a pursuit that has a lot to offer today's younger generation then we need to consciously strive to ensure not only does the hobby ignore political barriers, but it is not restricted by socioeconomic barriers either.

The second interesting point to emerge was the radio club's belief that there was already enough avenues into amateur radio without adapting any changes to our current licensing system. I am not sure of their logic because the evening was not dedicated to this single issue, but the issue is surely as simple as setting up the maximum number of entry points into our hobby, whilst ensuring maintenance of standards and protocols that the majority of amateurs see as important. The broader the access to our hobby becomes, the more likely we are to attract outsiders into our ranks — both young and old.

The third issue addressed was how do we sell ourselves to the public, but youth in particular. If indeed today's youth are heavily into Personal Computers, then the first stop should be a soft-sell via computer bulletin boards, something the WIA could well address, as well as club members with access to bulletin boards. Schools are another starting point — perhaps not only in the traditional, amateur addresses students, routine but by using courses such as VK3s STC, a Year 12 student negotiated curriculum course or as an integral part of Year 10/11/12 electrical or electronic practices course. Once again, a little investigation from each Division in association with their State's education authorities should reveal new avenues into schools.

Public education should form an important part of our overall approach to expansion. Check your Division's annual expenditure on Public Relations exercises/materials and then talk to a Divisional councillor. Clubs are often reluctant to organise displays in shopping centres or similar venues because "last time the public did not come near us." Of course they didn't! — you must go to the public. You are selling the product and so the initiative lies with you! It is very difficult to approach the kid with the punk hairdo, but he is probably as nervous of you as you are of him/her.

There are several more subtle ways to educate the public young or old. Doctors and dentists surgeries hold a captive audience, as do hospitals and the like — so make sure your old *Amateur Radios* end up in these places rather than at the local tip or incinerator — anything beats a two year old copy of *Women's Weekly.*

And the kid who puts petrol into your car and comments on the big CB set! The WIA have a pamphlet explaining amateur radio and how to get involved — obtain 20 from your Division and leave them in your car to answer the "ignorant public's" questions.

Amateur radio books in your library? Why not? They should be there! If they are not, ask for them to be put in your library or check out with the WIA Federal Office for what is available and donate it it your library, making sure the odd pamphlet or two is placed on the information boards.

Perhaps why we have failed to attract young blood into our hobby is academic but how we can attract young people is very important. Young people will give a hobby a much needed new lease of life and give a new perspective to where we are headed — imagine 40 metres with a thousand new stations causing the intruders interference! ! !

Our hobby by its very nature has much to offer young people, but it is up to us to ensure that we let them know about it and give them every opportunity and encouragement to become part of it. The thoughts of one famous American went along the lines — *It's not what my hobby can give me, but what can I give my hobby.* What have you given your hobby of late?

ar

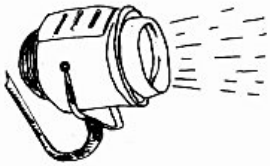
QSP

LIMITED CW

The use of CW is permitted on the VHF and UHF bands by holders of the AOLCP. This is not news — and has been previously published in AR magazine and included on WIA broadcasts.

However, comments at recent club meetings and on air show that some AOLCP operators are still unaware of the change which gives them the right to use CW.

Many have been heard operating with CW either to get their speed up for the DOC examinations or as an added mode for working DX.



Spotlight on SWLing

Robin Harwood VK7RH
52 Connaught Crescent, West Launceston, Tas. 7250

Well, another year has come to an end! There have been few surprises and a number of disappointments, mostly related to poor propagation. There have been a few new stations on the air, while some services are being curtailed. Fortunately, I believe that conditions are slowly improving and these summer months should see the higher frequencies more active, especially during the late evening hours. This will make up for the atrocious QRN on the lower frequencies from all the electrical storms, which will render these bands virtually unusable.

RE-BROADCASTING

At the beginning of October, we saw the commencement of re- broadcasts of Radio Japan (NHK), in Tokyo, from the Sackville site of Radio Canada International. This is as a result of a co-operative agreement signed by the representative governments. RCI has been engaged in re-broadcasting both the BBC and Deutche Welle, to North America, for many years. So it is not new to them. Radio Japan has also been using the facilities of Radio Gabon — *Africa No 1* — to get their signals into Europe and Africa.

On October 1, the first transmission went out on 6.120 MHz, at 1030 UTC, directed to the east coast of North America and surprisingly, was well heard here in Tasmania, which is well out of its target area. The program was 30 minutes in Japanese and 30 in English. Incidentally, the same program is going out on 7.140 and 11.815 MHz simultaneously from the Yamanta site, beamed to south-east Asia. When North America went off daylight saving on October 26, the broadcasts were aired one hour later. Radio Japan consistently comes in strongly, broadcasting to Australia on 15.235 MHz from 0500 UTC in Japanese and English.

GETTING THE SIGNAL THROUGH

The BBC, earlier this year, commenced utilising the Far Eastern Relay Station in Singapore, to get their 0600 release to Australasia through, because signals from the UK bases were not getting through. They are still using 15.360 MHz from 0600 until 0915 UTC, with this arrangement. Now they have been forced to utilise one of the old faithful channels from another site, because of the days getting shorter over in the UK. So the Antigua base, in the Caribbean now has moved onto that channel from 9.510 MHz, where it had previously been suffering co-channel interference from an Algerian station that was 1 kHz low, causing a very nasty heterodyne. And the move has paid off.

WATCH FOR CHRISTMAS PROGRAMMING

Do not forget the special Christmas programming that the BBC World Service usually emit during the Yuletide Season, culminating with the Queen's Christmas Message at 0930 UTC. This is usually followed by the very beautiful *Festival of Nine Lessons and Carols* from Kings College, Cambridge. Other stations will have special Christmas programming, especially Radio Vatican, with a broadcast of Midnight Mass from St Peter's Basilica and the Midnight Mass from the Church of the Holy Nativity in Bethlehem is often relayed by Kol Israel in Jerusalem.

I do not have the approximate times or frequencies available at the present time, as this is being written in mid-October. So a little eavesdropping will be in order around Christmas Morning, from 2200 UTC until 0130 UTC on the 25 or 31 metre bands.

IT'S GOING TO HAPPEN

In a recent column, I happened to mention that it was rumoured that the *Christian Science Monitor* was going to purchase *KYOI — Super Rock*. Well, this has, in fact, happened. I have not heard KYOI lately so perhaps they are preparing for the conversion to come on-stream about the same time as the State-side operation is going to commence, early in 1987.

NDXE (pronounced *In Dixie*)

Yet another station is not on-air! The much-vaunted NDXE, which was reportedly going to transmit with AM-Stereo on HF has not appeared, and the consensus amongst the State-side fraternity is that it might not, although it is heavily into promotional material, eg cups, licence plates, a 3D holographic card and other trinkets. Most will believe it when they hear it! By now, it may be on the air, but don't hold your breath waiting.

THE MOST . . .

One station that I would vote as the most improved broadcaster in 1986 would be Radio Beijing. Compared to programming 10 or 15 years ago, when there was Maoist rhetoric and not much worth listening to, RB today is quite refreshing and interesting to listen to, especially their World News, plus Domestic News bulletins. They have nice musical interludes and interesting interviews, with a minimum of propaganda. Radio Pyongyang, in North Korea, still remains the most boring and repetitive with endless slogans and propaganda.

We will see what 1987 will bring in four weeks time. Until then, it remains for me to wish you the compliments of the Season and a Happy 1987 to you and yours.

—Robin VK7RH

Intruder Watch

Bill Martin VK2COP
FEDERAL INTRUDER WATCH CO-ORDINATOR
33 Somerville Road, Hornsby Heights, NSW. 2077

If you hear an AM station on 14.000 MHz announcing as "Idha'at al-Jamahiriya al-Arabbiya al-Libya ash-sha'abiya al-ishtirakiya", you could be forgiven for thinking that your receiver has developed addled innards! What you would be hearing is the "Libyan Jamahiriya Broadcasting" from Tripoli, which broadcasts a program daily in Arabic, from 1000 to 1600 UTC . . . or so intruder reports from DJ9KR tell us.

This is bad news for amateurs and SWLs in IARU Region 1, but hopefully it will not affect us here in Region 3.

The station has another output on 15.415 MHz, which does not really concern us. Actually, in spite of my monthly lamentations on the intruder problem, we really do not suffer as much as those who operate in Region 1.

In spite of the wonderful distances that radio waves can travel, (except when one is straining to exchange signal reports with a new country), we do not hear the greater percentage of intruder stations which emanate from Region 1, and it appears that we in the antipodes are not only somewhat isolated geographically from the rest of the world, but apparently are also isolated a little with regard to radio propagation. Or so it would seem.

As far as the non-receipt of intruder signals originating in Region 1 are concerned, this is no load to bear. There are, of course, plenty that we do hear in VK.

Those who helped us to keep an ear on them last August were:
VK2s DEJ, EHQ, MT, PS, QL, Arthur Bradford, VK4s AKX, BHJ, BTW, DA, KAL, KHZ, OD, VK5s GZ, TL, VK7RH, VK8s BEM, FT, HA and JF.

Intruders using broadcast-mode numbered 303; those using CW-mode 100; RTTY was employed by 68; and 54 were reported using modes others than the preceding. There were 46 stations which identified.

In this column in November, I mentioned that there is some sort of commercial operation regularly on 14.051 MHz, in CW, which is coming from Indonesia. I have written to the Indonesian Amateur Radio Society (ORARI), seeking their help in deal with the problem.

The Intruder Watch Information Pamphlet has been reprinted, and your Divisional Intruder Watch Co-ordinator should now have stocks. If you wish to know more about the Intruder Watch, drop him a line and he will send you a copy.

As I close the column for this month, it is again with great pleasure that I extend greetings for the Christmas season to all, and nominate my wish for 1987 to be — *More DX and Less Intruders*. Merry Christmas from VK2COP.

ar

QSP

VHF HAPPENINGS IN VK6

Two-metre contact was established between Darwin and Koolan Island, when Dougall VK4KUY/6, using 30 watts through a nine element Yagi, worked into Darwin's Channel 8 Repeater on September 10, from 1200 to 1255 UTC and again on September 11, at 1545 UTC. Stations Dougall worked included VK8s ZWM, LM, DI, ZED, PC, KJJ and TA.

A first for two-metres was created when Brian VK6AIH, Port Hedland, worked Ron VK6UF on Koolan Island. Ron recently bumped his output to 200 watts on FM.

Carnavon Repeater, VK6RCA has been operational on 146.075 MHz input and 146.675 MHz output. Jim VK6CA, had the repeater running from his QTH in late September and further tests were to be carried out at the Carnavon Lighthouse, a tower of about 100 feet (30m) right on the coast which should be ideal for ducting up and down the coast. If the location proves suitable, Jim will apply for permanent permission to use the tower.

Dave VK6YA had a short QSO with JA on 52.050 MHz, September 12, at 0830 UTC. Signals were 5/9 and JH8MQZ/5 reported hearing VK6RTT, as well.

—From the *North West Amateur Radio Society*, October Newsletter

OTHR GO AHEAD

The Australian-designed over-the-horizon-radar system, *Jindalee* is to be installed in two, or possibly three sites in addition to the experimental Alice Springs location.

Cross-referencing between the sites will enable surveillance of aircraft and ship movements on Australia's northern approaches.

Radio Amateur Old Timers Club

Kevin Duff VK3CV
Publicity Officer
Radio Amateur Old Timers Club

MONTHLY OLD TIMERS NET

Despite poor band conditions, the monthly News Bulletin and call-back has been well attended. Thanks to the efforts of the Net Controller, Mac McConnell VK3RV, and his team, the monthly news broadcast and call-back is on three frequencies; 7.060, 3.624 (transmitted by Eric VK3KF and copied by many interstate stations), and 145.700 MHz FM, for Melbourne listeners only.

The net is on the first Monday of each month, commencing at 2300 UTC. Call in and join the Club.

The President, Secretary, and Committee Members of the RAOTC wish to thank all members for their efforts in making the year, 1986, a very good one for the Club. We wish you and yours a very Happy Christmas and New Year.

The RAOTC Secretary/Treasurer, Harold Hepburn, would like to thank members for donations made over the last few months. We are very appreciative of these! Our finances are not shaky, but sometimes a little on the parlous side. We do appreciate the recent donations from Max Austin VK2KZ, Allen Doble VK3AMD, P Sebire VK3MX, Lay Cranch VK3CF, Ron Anderson VK5GM, Eric Ferguson VK3KF, Snow Campbell VK3MR, and Keith Valentine VK3AKB. Thank you gentlemen, for your efforts.

ODE

Lives there a ham with soul so dead
Who never to himself has said:
"What in heck has that mailman done
With the card from Contact Number One?"

VALVE BANK

This is not like the *Blood Bank*, it is more like a *Heart Bank* if you have a piece of equipment that needs a valve transplant. It is being run by Ron Higginbotham VK3RN, who is collecting donations of old valves, testing them as far as possible, and making the usable ones available for sale at 50 cents for receiving types and $1 to $2 for transmitting types — with a "money-back" guarantee.

The proceeds go to club funds. If you could use a re-cycled valve, see Ron; or if you have a box full of old valves that you do not have the heart to throw out, Ron will be pleased to take them off your hands.

—Extracted from the Moorabbin and District Radio Club Newsletter *APC*, September 1986

RAOTC LUNCHEON

The Annual Victorian Luncheon of the RAOTC was held on Wednesday, September 24, at the Melbourne City and Overseas Club. It was well attended with 39 members being present. This was purely a social event and all enjoyed the cuisine and meeting old friends and new ones.

RAOTC President, Max Hull VK3ZS, was Master of Ceremonies. Apologies were received from 11 members from three States. Max told us that Gavin Douglas VK3YK, had suffered a mild stroke, but is now recuperating. He assures us that he will be attending our next function and sends best wishes to all of his friends. Best of 73 to you Gavin for a speedy recovery, from your RAOTC friends.

Graham Sutherland VK3AGS, a recent member, attended this function and was "welcomed aboard" by the President and all members. 73 to you Graham.

Max Hull told members a very pleasant and interesting story. Jim Marsland VK3NY, was licenced in 1931 and was a very early editor of *Amateur Radio* magazine and continued this well into the post-war years. His son, Allen, who is a school teacher at Mount Beauty, has now completed his full licence and has been allocated his father's call sign, VK3NY. Congratulations Allen and Old Timers will look forward to hearing you on the air.

Allan Doble VK3AMD, gave an interesting talk on a subject most amateurs know well — that is line QRM from television sets producing interference on the amateur bands, mainly on the 1.8, 3.5 and 7 MHz bands. Help is needed from suitably equipped amateurs who may be able to investigate these problems. If you can help, please contact Allan Foxcroft VK3AE.

There were no official speakers at this luncheon, but Bill Gronow VK3WG, provided some very humorous anecdotes concerning early Wireless Institute exhibitions and the problems involved and solved. He also spoke about going aloft in an DH88 aircraft to sort out the problems with the transmitter. This was done, but the pilot overshot the Essendon Aerodrome and caused havoc with the poultry farm at the end of the strip! ! ! However, second time around they landed safely and all was well.

Ivan Hodder VK3HR, also had a story. He was a Radio Inspector in 1939 and was asked to install a series of radio towers between Alice Springs and Darwin. He was working by himself and some of his stories about the problems of using local help were very funny indeed. He once joined a Lockheed 10 aircraft for a flight to Darwin. He offered his services as radio operator to the two pilots, but because of a mix-up, the pilots thought that he was also a pilot and the result was that he was left in control of the twin- engined plane for a considerable period, even though he had never flown an aircraft before. He found it most enjoyable; however you could imagine how the pilots felt when they discovered this! ! ! This story of Ivan's brought the house down.

Our net controller spoke briefly about the new net frequencies after which this very successful luncheon came to a close.

RAOTC NOTES

We are a little ahead of ourselves, but would like to advise members that the Old Timers Dinner will take place on Thursday, March 5, 1987 and will commence at 7 pm. The venue and the price of the Dinner have not yet been decided, but members will be advised about these soon. Mark it in your diary — March 5, 1987 The Old Timers Dinner!

PERSISTENCE

Nothing in the world can take the place of persistence;
Talent will not — nothing is more common than unsuccessful men with talent;
Genius will not — unrewarded genius is almost a proverb;
Education will not — the world is full of educated derelicts.
Persistence and determination alone are omnipotent.
The slogan "Press On" has solved and always will solve the problems of the human race.

—Alleged to have been written by Teddy Roosevelt of the USA

THE WORLD'S LONELIEST RADIO

Located in the Coral Sea, about 400 miles east of Townsville, Queensland, is a small coral island about 500 yards wide. This is Willis Island, the home of the world's loneliest radio station. On this island for a year at a stretch, live two radio operators whose duty is to observe the readings of weather instruments and transmit them to the mainland. By this means the Weather Bureau is able to forecast cyclone warnings, and weather forecasts at least 24 hours before they would otherwise be able to do so.

The station has been in operation for about 10 years. For the last couple of years, the monotony has been relieved by the installation of an amateur radio station with the call sign of VK4SK. For six months, the operators see no other human besides themselves and the only company is that of the terns, noddies and gannets, which come to nest in thousands. (The birds return for egg-laying at the same time each year, within a day or so of the same date, year after year). Amateur radio enables the operators to obtain news of their friends and relatives and it is the pleasing duty of VK2YK to handle such news, weekly. The transmitter at VK4SK is a TPTG using about 100 watts to a DET 1 tube. The power supply consists of a petrol driven generator and the QRI is a typical 500 cycle note as used by shortwave marine stations. Work is done on the 3.5, 7, and 14 MHz bands and American listeners would do well to watch for this station on 7 MHz each Wednesday at 7.15 pm Sydney time and on 14 MHz at 1.45 pm on the first and third Sunday of each month, throughout the year.

The island is surrounded by a coral reef, is 22 feet above sea-level and has a shark-proof bathing enclosure constructed by the operators. Spare time is spent studying, playing golf with sticks and tennis balls and in swimming. As the temperature averages about 80 degrees, the latter is very popular and Willis Island fashions generally consist of shorts and singlets with perhaps a beard if the wearer prefers it to shaving.

How would you like to pound brass at an amateur station like this? No local QRM or background noise! Look for VK4SK and work the world's loneliest amateur station.

—Written by Roy E Abbott VK2YK and published in *QST* August 1932

(The January 1985 issue of *Amateur Radio* magazine advises that Willis Island is currently being activated by VK9ZR on all bands including six metres. Information about the transmitting times can be obtained from Jill VK6YL, who also handles QSLs).

WAVELENGTH, FREQUENCY AND LC VALUE CHART

Back in the middle of the 20s, 'wireless' was booming and hundreds of people built their own receivers. The term *wavelength* was more commonly used than *frequency* and ascertaining the value of capacity and inductance to tune a required wavelength — let alone understanding the 'Q' of a tuned circuit — was a giant calculation for many. To assist people with the necessary calculations the chart illustrated here was published in the magazine *Science and Invention* April 1926 issue. This magazine, edited by the famous author and experimenter, Hugo Gernsback, had combined with an earlier magazine by the same editor, *The Electrical Experimenter*. Later on, these publications became known as *Radio News*, but perhaps that is another story.

In the aforementioned issue of *Science and Invention* was a column known as 'Radio Oracle' which was a department of the publication's operation. This chart was the answer to a correspondent's question. It is a unique chart in that it includes the value of the product of LC, obtained by multiplying the inductance of a coil in microhenrys by the capacity of a shunt condenser in microfarads.

To give a typical example, suppose we have a nice condenser in the shack with a maximum value of .0005 μF and we desire to obtain the inductance of a coil which will tune to 160 metres (1.875 MHz). Referring to the table, we find that the LC value for 160 metres is .007204. Dividing this by the maximum capacity of the condenser (.0005 μF), we find that the coil to be used with this particular condenser should have an inductance of 14.408 microhenrys. Now, 60 years later, it could still be a useful chart for use in the DC bands. All you really need to know is the maximum capacity of that variable condenser in the junk box.

ar

Chart for Determining the Wave-length, Frequency and LC Value for Radio Frequency Circuits

(L is in microhenries and C in microfarads.)

Wave Length (Meters)	Frequency (Kilocycles)	LC Value	Wave Length (Meters)	Frequency (Kilocycles)	LC Value	Wave Length (Meters)	Frequency (Kilocycles)	LC Value
10	30,000.00	.0000282	65	4,615.00	.001188	230	1,304.00	.01489
11	27,273.00	.0000340	70	4 286.00	.001378	235	1,277.00	.01555
12	25,000.00	.0000405	75	4,000.00	.001583	240	1,250.00	.01622
13	23,076.00	.0000476	80	3,750.00	.001801	245	1,255.00	.01690
14	21,426.00	.0000552	85	3,529.00	.002034	250	1,200.00	.01760
15	20,000.00	.0000634	90	3,333.00	.002280	255	1,177.00	.01831
16	18,748.00	.0000720	95	3,158.00	.002541	260	1,154.00	.01903
17	17,646.00	.0000813	100	3,000.00	.002816	265	1 132.00	.01977
18	16,667.00	.0000912	105	2,857.00	.003105	270	1,111.00	.02052
19	15,788.00	.0001016	110	2,727.00	.003404	275	1,091.00	.02129
20	15,000.00	.0001126	115	2,609,00	.003721	280	1,071.00	.02207
21	14,284.00	.0001241	120	2,500.00	.004052	290	1,034.50	.02366
22	13,635.00	.0001362	125	2,400.00	.004397	295	1,017.00	.02450
23	13,042.00	.0001489	130	2,308.00	.004757	300	1,000.00	.02533
24	12 500.00	.0001622	135	2,222.00	.005130	310	967.70	.02705
25	12,000.00	.0001755	140	2,144.00	.005518	320	937.50	.02883
26	11,538.00	.0001903	145	2,069.00	.005919	330	909.10	.03066
27	11,110.00	.0002052	150	2,000.00	.006335	340	882.40	.03255
28	10,713.00	.0002207	155	1,935.00	.006760	350	857.10	.03448
29	10,343.00	.0002366	160	1,875.00	.007204	360	833.30	.03648
30	10,000.00	.0002533	165	1 818.00	.007662	370	810.80	.03854
32	9,374.00	.0002883	170	1,765.00	.008134	380	789.50	.04065
34	8,823.00	.0003255	175	1,714.00	.008620	390	769.20	.04277
36	8,333.00	.0003648	180	1,667.00	.009120	400	750.00	.04503
38	7,894.00	.0004065	185	1,622.00	.009634	410	731.70	.04733
40	7,500.00	.0004503	190	1,579.00	.01016	420	714.30	.04966
42	7,143.00	.0004966	195	1,538.00	.01071	430	697.70	.05204
44	6,818.00	.0005446	200	1,500.00	.01126	440	681.80	.05446
46	6,522.00	.0005960	205	1,463.00	.01183	450	666.70	.05700
48	6,250.00	.0006485	210	1,429.00	.01241	460	652.20	.05960
50	6,000.00	.000704	215	1.395.00	.01301	470	638.30	.06219
55	5,454.00	.000852	220	1,364.00	.01362	480	625.00	.06485
60	5,000.00	.001014	225	1,333.00	.01425	490	612.20	.06759
						500	600.00	.07039

The chart for determining wave-length, frequency and LC values often comes in handy for use in various radio calculations. Clip this table out and keep it for reference.

Table 1.

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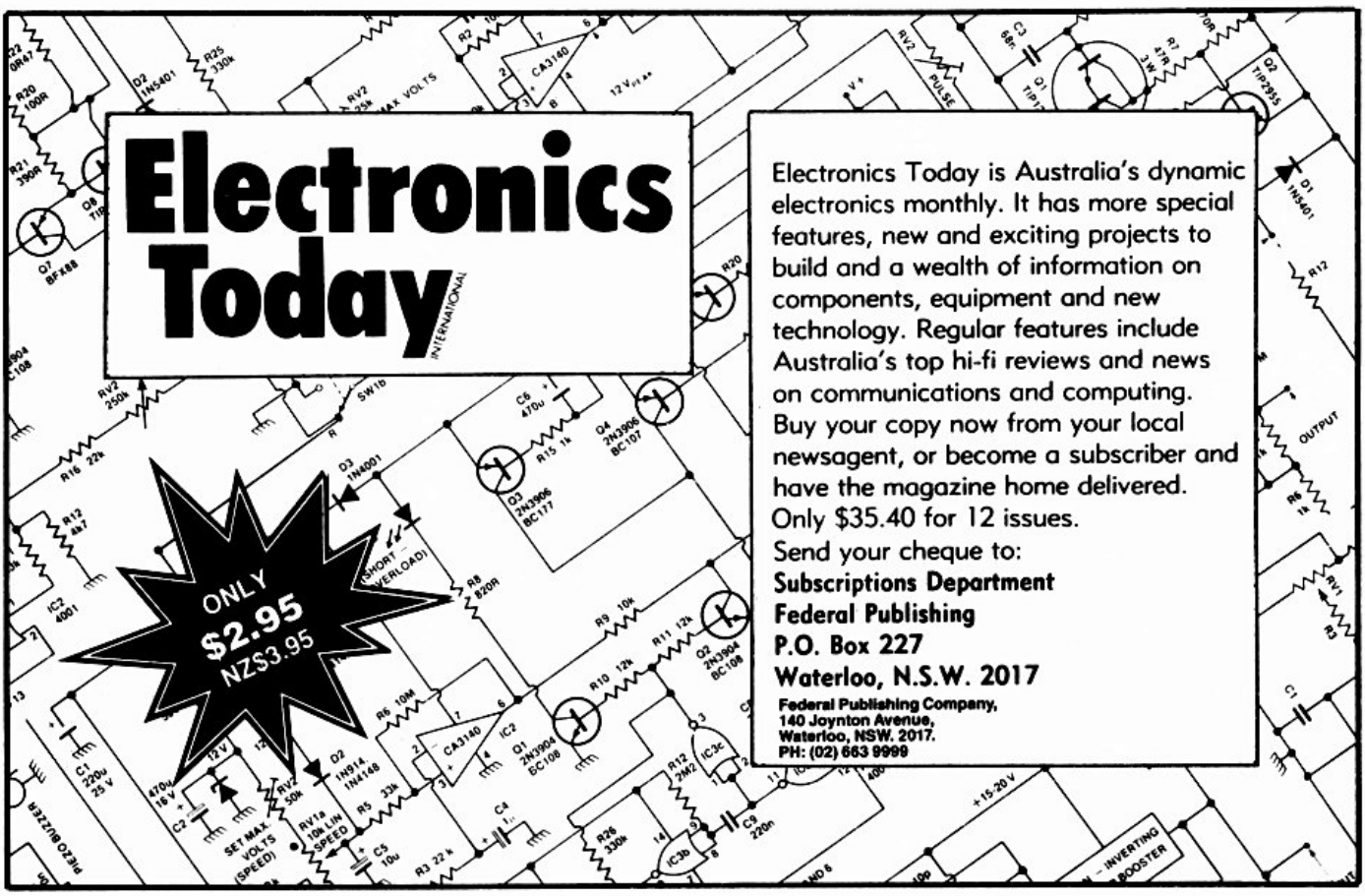
AR86/2



TECHNICAL MAILBOX

DC POLARISATION PROTECTION FOR MOBILE RIGS

Bob Geeves VK7KZ, of Hobart, has provided insight into consumer products where the customer is always right, but the electronic evidence provides conclusive evidence that it was not the case.

Bob provides a simple modification carried out on a CB rig that forces the user to *get it right!*

Here is Bob's suggestion, noting that it is only applicable for equipment that does not have the negative supply connected directly to the equipment case.

Most readers will be aware that the DC input circuits of most CBs, mobile amateur rigs, marine electronics, etc have reverse polarity protection in the form of a diode across it to cause the fuse to blow if connected incorrectly.

In my experience, over many years of servicing such equipment, the most common fault is just that.

Whether it has been that the battery has been taken out and replaced in a vehicle the wrong way around (yes, some people even open up the negative terminal and squeeze the positive to fit! !), sheer ignorance of what red and black means, the more frequent use of two red leads, one with a black trace along it causing confusion, it happens regularly.

I had a case some years ago where a unit came in smelling badly of burnt wiring. On inspection, it was found that it had an unblown 35 amp fuse in the power line, the polarity protect diode had melted in half, the power leads inside the set had been on the verge of fire, and tracks on the PCB had changed colour.

This was a typical case of the wrong polarity. The diode had caused the original two amp fuse to blow. The customer replaced it with one size bigger and tried again. The diode by this stage was dead-short, so it blew the second fuse. A 35 amp fuse was installed, the power hooked up again, and "smoke appeared from inside the set with funny crinkly sounds."

Time to take it to the doctor.

I repaired the unit and told the customer that it had been put on the power back-to-front.

I also explained that it would have been worse if he had switched the set on, because luckily the protection diode was before the ON-OFF switch, so the reverse polarity did not get to the rest of the set.

Next day, back it came. The customer was extremely angry having to bring it all the way back from the country.

Sure enough, same problem. I fixed it again and told him *once again* it was connected back-to-front, and to please check which is positive and which is negative.

A newly educated customer left happily, I hoped, as I only charged for the new diode — no labour.

The next day he was back! "Same thing happened — b. . . y fuse blew, but I did not try any more and I checked the polarity thing!"

I thought I would be smart and put a diode in series with the positive power input before the protect diode. At least it would not go if reversed, and would not do any damage. Away he went after I proved to him that it worked.

Next day he was back again! "The fuse didn't blow, but it won't go at all when you switch it on!"

This is when I decided to install a bridge rectifier in the power input, so it would not matter which way the power was applied and the set would still work. The set worked okay the next day so I had a happy customer (with a weird vehicle). He rang to give me the good news.

I have used this method regularly since that memorable week, and the hassle of arguing with customers has vanished. I would recommend it to anyone who has any electronic equipment that is connected and disconnected regularly for a DC source, as it can save a lot of heartache.

The choice of the bridge will depend on current drain of equipment. Five amps would be suitable for some car radios, small echo sounders, CBs and cassettes. *(Be warned however, that this is only applicable when the negative lead is not connected to the case — Tech Ed).* For larger current equipment, a 35 amp bridge could be used, but be sure to bolt them to somewhere suitable for heat transfer.

The power input goes to the normal AC input to the bridge, and outputs from +ve to switch, -ve to -ve rail.

(The protection diode is now somewhat superfluous with Bob's modification, but, of course, it can be left in as a "belt and braces" approach — Tech Ed).

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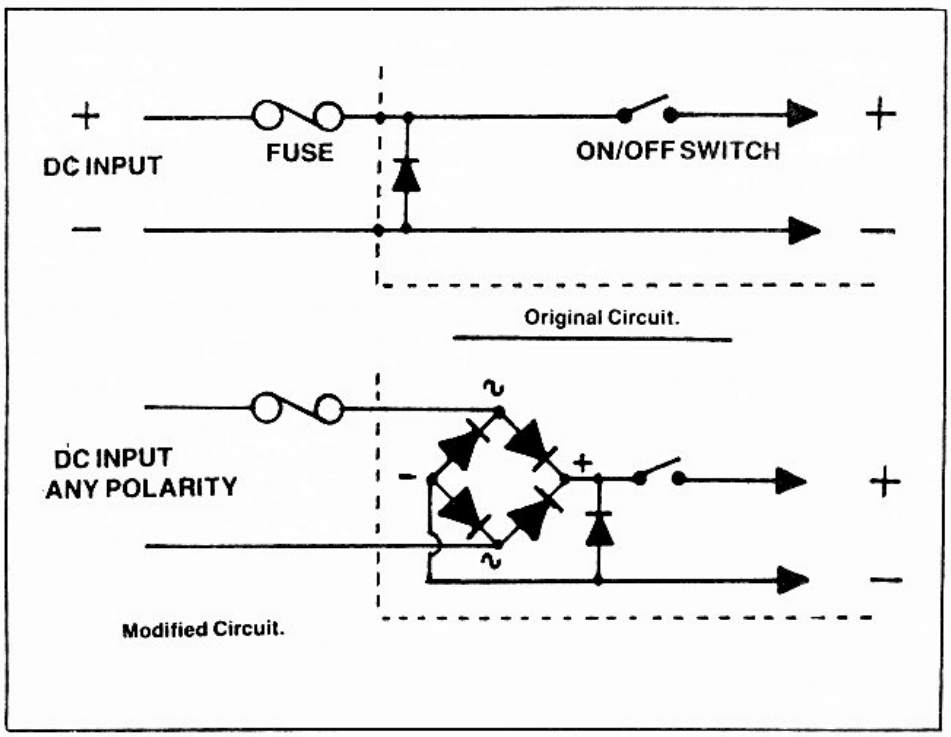

Ken Hall VK5AKH
FEDERAL AWARDS MANAGER
St George's Rectory, Alberton, SA. 5014

AWARDS ISSUED RECENTLY

DXCC

PHONE

349	Ken Watson VK2CKW
350	Ian Thomas VK3DNC

CW

127	Ian Thomas VK3DNC

VHFCC — 52 MHz

118	J A Roberts VK1ZAR

WAVKCA

1501	Jim Takamatsu JF2FMP
1502	Nicholas E Moon ZS6BBY
1503	Nariaki Murasato JH6CDI
1504	Osamu Kobayashi JH3CBN

WIA 75 AWARD UPDATES

Certificate No 680 — Made Aryasa HC3HIB
Certificate No 681 — Zenon Pietrzak SP6FER

ar

PERMANENT AMATEUR IN SPACE? ? ?

Representatives of NASA, AMSAT and ARRL met recently to initiate a long-term program which could lead to amateur radio literally being built into the NASA Space Station.

A working group was formed to develop the basis for a plan which would lead to a formal proposal to NASA during 1987.

—Abridged from *The ARRL Letter* September 29, 1986.

Pounding Brass

Marshall Emm VK5FN
Box 389, Adelaide, SA. 5001

Before going on to the general business for the month, it is with a great deal of regret that I must advise readers that this will be my last column for some time. There are a number of reasons for seeking a "leave of absence," not least of which is the conviction that it is time for someone else to take over and bring a breath of fresh air to the column. Arrangements are not final as I write this, but it is my sincere hope that someone else, who feels as strongly as I do that CW deserves to survive and that its operators need a voice in *Amateur Radio,* will take up the challenge.

It has been a great deal of fun, and an education, writing *Pounding Brass* over the last four and a half years. The column began because there was a lack of material for CW operators in the radio publications at the time, and I felt that newcomers to the hobby needed to be provided with some assistance and encouragement so that they might become good, effective and enthusiastic CW operators. Judging from correspondence received over the years, I am proud to say that the original aims of the column have, by and large, been met.

Through correspondence generated by *Pounding Brass* I have made many friends with similar interests in CW and without whom the column would not have survived as long as it has. My thanks to all of you, and I hope you will offer a similar level of support to my successor.

Under the heading of "tidying up loose ends," you might recall that in the June edition of this column there was a suggestion that a "shoot- out" would prove that CW message handling is faster than phone. Readers were invited to take up the challenge and, if enough interest was shown, a formal event was to have been organised. Well, the good news is that a number of readers were willing to have a go! The bad news (depending on how you look at it) was that those who responded did not include a single phone operator. I therefore declare CW to be the winner by default!

Bill VK2MUS, wrote recently describing his early days as a telegraphist, and I found it very interesting reading:

"It seems strange to read of the many computer programs and similar schemes for learning Morse these days. As a telegraph messenger in a country town you were given a copy of the Code, access to a practice set and hopefully the postmaster or postal clerk could find time to give you some receiving practice. If you passed the test, your tutor received a bonus of £12.

"There was no classroom-type training until after WWII for Post Office staff. Full time telegraphists went to the Telegraphists-in-Training Class, in Sydney for training in machine systems but had to be qualified in Morse before being accepted. Country Morse tests were conducted over actual lines from the CTO in Sydney and involved sending and receiving something like 40 telegrams — rather different to the few words of the DOC test.

"Most of the smaller country Post Offices shared a line with several other offices, each having its own call sign. I started work at Culcairn (CC) and other offices on that line were The Rock (HG), Henty (HJ), Walla Walla (WP), Baildale (AS), Corowa (CW), and sometimes Oaklands (OD). The line was controlled by the Sydney telegraphist who worked each office in turn.

"The circuit was voice frequency from Sydney to Wagga Wagga with single wire physical line from Wagga Wagga to the end of the line, with earth return. If the line went open circuit on the country side of an office, contact could be re-established by putting that side to earth. Signals were virtually tuned in on the adjustable relay, which operated the local sounder circuit. If the relay was out of adjustment it was possible for signals to be passing through an office without being heard. If adjustment was needed, the sending operator would be asked to 'WRITE PLS' and he would send something out of his head before being given 'GA' to commence transmission. It was usual to send 'TTS 5' and receive '5 OK' after five telegrams as it was possible to be 'sending to the wind' and have to repeat them.

"Cutting it up, as per the Spruhan poem (*Coming Round the Bend*) was only supposed to be used for press telegrams. There was an official list of abbreviations in the Postmaster's Instructions book. However, at busy offices, particularly on Saturday mornings, abbreviations were often used on greetings telegrams such as congratulatory, birthday or wedding messages. There were various ways of speeding things up. You were not too popular if you had to open the key on a fast operator to count the words for the word check at the end of the message. A common way of avoiding this was to put a double space (typing) every five words. If there were supposed to be, say 18 words and you finished with three on the end, there was no need to count. When you were part way through receiving a telegram you dropped another form into the typewriter so that it followed the first one around the platen — saved a second or two and a possible fumble when grabbing a form in a hurry! These things were necessary because some slick operators scarcely paused between telegrams. Although it was not allowed officially, some timed their messages off with their left hand while sending with the right. Timing off consisted of putting a batch number, line number, time of transmission, and initials. It takes quite a lot of skill to do both together."

Some of you may wonder what all this old-time telegraphy information has to do with amateur CW operation. Well, all I can say is it is our heritage. It is a very large part of how we came to be high-tech electronic brass pounders, and there is always something to be learned. For example, Bill's letter reminded me of an early exposure to amateur CW operation, where I saw someone sending with his right hand while logging with his left. Wish I could do it!

Some tricks of the trade are so natural that they are almost universal, such as continuously feeding forms into a typewriter (I used to do that with index cards when I was at uni). Radio operation tends to follow similar patterns around the world, partly because one instinctively tends to mimic ones peers, and partly because one deliberately remembers and tries to implement better ways of doing things. Amateurs around the world work with each other and develop for their own convenience standard ways of communicating. But I wonder how similar land-line telegraphy operations were in, say, rural Australia and rural America. For that matter, how did domestic telegraphy compare with international cable operations?

Since it has not been mentioned for some time, and there are probably many more of you out there who own IBM-PCs or clones, I would like to take this opportunity to remind you that I have developed a Morse training package to run on the PC. It has undergone considerable revision, and now, in addition to the keyboard echo feature, and generation of random practice groups and words, it now has the ability to send "speed words" and convert any text file on the PC to Morse code. Send a SASE for full details.

Tony G4FAI, has advised of a new international publication for Morse operators. It is called *Morsum Magnificat,* and is published in the Netherlands, with an English version edited by Tony. *Morsum Magnificat* is written by, and for, Morse addicts. The intention was to find and bring together the history, illustrations, anecdotes and adventures of Morse telegraphy, wire and wireless, to save them for posterity. *Morsum Magnificat* is published quarterly, and an annual subscription is $A13.

Send details and your remittance to Rinus Hellemons PA0BFN, Holleweg 187, 4623 XD Bergen op Zoom, Holland. Cash is preferred to cheques, but if you are wisely reluctant to send cash through the mail, you can send an international bank draft for £6, payable to "Morsum Magnificat" care of Tony Smith G4FAI, 1 Tash Place, New Southgate, London, N11 1PA, England. The efforts of these keen CW enthusiasts deserve support.

Tom VK4TL, mentioned a contact recently with a fellow who had not been able to "master a Morse key" but, as he was interested in the mode, he was using a stapler and a piece of wire. Tom says his signal formation was good, but as might be expected, there were a few break-downs.

Finally, Harrow VK3CHM, sent a clipping from *The Age,* August 19, 1885. Well, actually it was in the *Happening 100 years ago* column. It is worth quoting:

"The Postmaster-General has decided to introduce into the telegraphic service a system of prize medals and certificates for efficiency similar to that in force in America. The object is to foster an interest in the study of telegraphy amongst the operators. The prizes will be divided into four classes. In the first class, a gold medal will be awarded to the best transmitter of messages, and a silver medal to the second best. Similar medals will be awarded to the best and second best receivers of messages. A special gold medal will be given to the operator who proves his superiority in every branch. The test examinations will take place about November. . . It is the intention of the Postmaster-General to also award a gold and silver medal for the best and second best essay on the progress of electrical science during the present year. . ."

What a clever idea! Of course, that was back in the days when initiative was rewarded, not taxed.

Thanks again for your attention and interest over the last few years. My very best wishes for an enjoyable holiday season, and 73 until next we meet.

ar

FRED READY TO HELP DISABLED

O An Australian microcomputer-based video training aid for the disabled, based on the television home computer and games concept, is now on the market.

It is called the friendly rehabilitation and education device (Fred). The basic design allows for control of the unit by two joysticks, but provision is made for tailor-made switching to suit special needs.

From inception, Fred was designed with the needs of the disabled in mind.

It is not a standard consumer product modified, but an aid for therapists and teachers who work with the disabled.

It produces colourful displays moving at graded speeds on any standard colour television receiver.

Program cartridges will offer a variety of games, educational packages and exercises, each with selectable levels of difficulty and skill.

—Condensed from *electronics news* September 1986

Electro-Magnetic Compatibility Report

Hans Ruckert VK2AOU
EMC REPORTER
25 Berrille Road, Beverly Hills, NSW. 2209

The West German electronics magazine *Funkschau* published in 1974-75 a number of papers on EMC technology. The aim was to inform the public about the need for electronic entertainment equipment and other appliances designed so that the equipment is immune (sufficiently selective) to legally transmitted signals from other services not meant for entertainment. These publications described:

- EMC television receiver front-end
- Selective antenna preamplifiers
- FTZ (DOC) testing methods (approval of manufactured and imported appliances)
- FTZ (DOC) EMC standards

They also included:

- Addresses and telephone numbers of 72 radio inspectors' offices
- Names, addresses and telephone numbers of 121 appliance manufacturers and importers who had offered to assist in EMC problem cases
- Filter designs and response curves from appliance producers and from several special filter manufacturers were also published.

All this work was done more than 10 years ago and the many technical problems solved, as the following publication shows:

***Funkschau*, No 24, 1974 by the late Egon Kock DL1HM**
translated by Hans Ruckert VK2AOU

RF Radiation-Immune Colour TV Front-end
Television sets may be affected (TVA) by unwanted RF radiation, which may be picked up by the television chassis, the television aerial, the mains power line or via the attached cables and appliances (VCR, Hi Fi equipment, computer etc).

The Immune TV Tuner
(A Grundig circuit, Figure 1, typical of 1974 West German design)
It is important that television front ends are equipped with a high-pass filter with 48 MHz cut-off frequency and input band-passes for television band I, band II and UHF. The filter response should have a steep cut-off slope to protect the control electrode of the RF stage transistor. These, and sometimes needed add-on filters, work only as intended if the chassis earthing points have been correctly chosen (provided there is a metal chassis). It is also important that protective diodes, used against atmospheric discharges picked up by the antenna, are placed correctly to avoid rectification, modulation and production of harmonics. The circuit shows a shielded high-pass filter at the antenna terminal, which attenuates all unwanted signals below 40 MHz from short-, medium- and long-wave transmitters. Not all manufacturers do this. Consequently, the pin diodes Di-51, Di-52, Di-54 and the protective diodes Di-56 and Di-57 cannot cause interference. We find next a series tuned L-C trap with C-57, which is tuned to 145 MHz to suppress two metre amateur radio transmitter

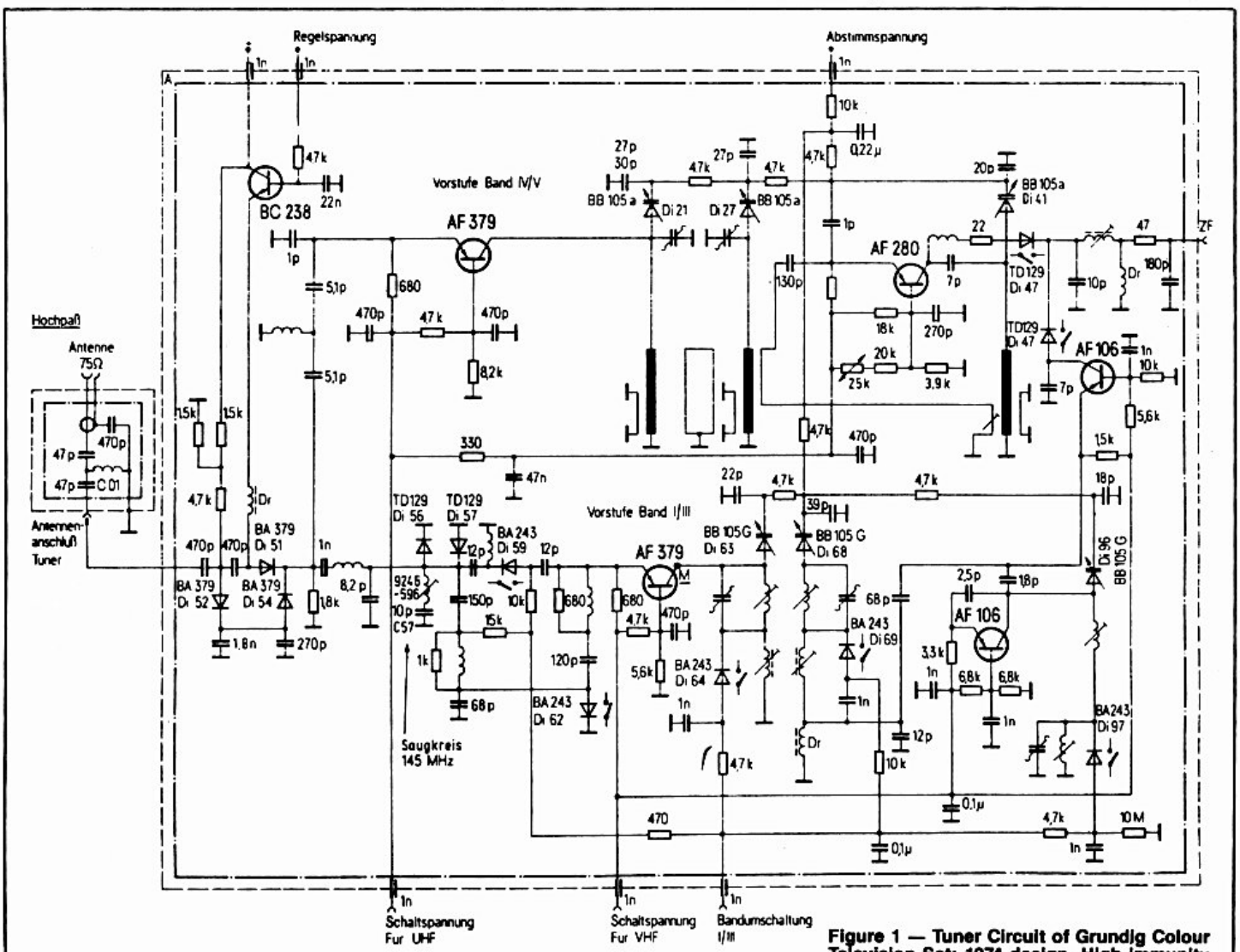

Figure 1 — Tuner Circuit of Grundig Colour Television Set; 1974 design. High immunity against unwanted signals entering via the antenna.

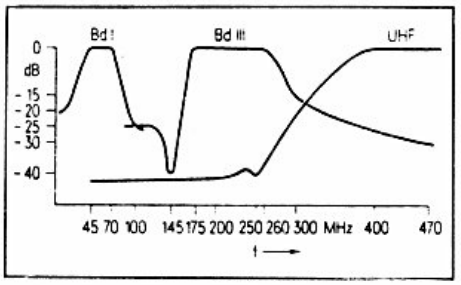

Figure 2 — Tuner Selectivity of Grundig Colour Television Set; design 1974.

signals. The passband filter, which is switched by diodes Di-59 and Di-62 (television band I and band III) has steep slopes to improve the selectivity by rejecting further out of band signals. Both tuner preamplifier stages use high current transistors AF-379, without gain control, which improve greatly the dynamic range of the preamplifier. They operate with constant operating conditions. A 100 mV input signal at the emitter causes only one percent cross modulation, but some popular transistors can only take 15-20 mV. Any remaining unwanted signals are further rejected by the following passband filters, which are tuned by capacitive diodes. Figure 2 shows the television front end selectivity achieved. It shows also the 30 dB dip caused by the 145 MHz trap. An easy to plug in additional high-pass filter with 48 MHz cut-off response is being made available, as also is a high-pass filter for above 175 MHz (if VHF band I is not used), to deal with extremely difficult cases.

Direct RF Pick-up by the Chassis Components and Leads

The most important step was the total shielding of the complete IF amplifier, to which the shielded tuner is connected via a short coaxial cable. It was also necessary to use ceramic feed-through capacitors to remove RF from the tuning voltage lines of the electronic tuning circuit. Of extreme importance was the selection of the correct earthing points for the various circuit groups and their connecting leads and coaxial cables, to avoid bypassing of the tuned circuits and filters.

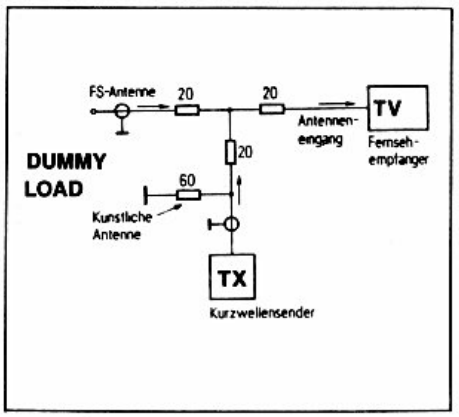

Figure 3 — Immunity Testing of a Colour Television Set on Amateur Bands with transceiver and Preamplifier as unwanted signal source. At up to 100 volts RMS level on 3.6 MHz, no TVA on Grundig Television Receiver.

Testing of Immunity at Radio Amateur Frequencies

Figure 3, Grundig method 1974-75. The transceiver FTDX-500 with the linear amplifier FL-2000B are connected to a 60 ohm dummy load. A 6 dB power splitter connects the transmitter output voltage to the television antenna terminal. The transmitter was single tone modulated on the 80 metre band, but there was no picture or sound interference despite the 100 volt RMS transmitter level.

Similar results were achieved using a ground plane transmitter antenna (a dipole for 80 metres) only 1.9 metres away from the television antenna, and the transmitter operating with maximum power on the 40, 20, 15 and 10 metres bands. With 600 watt ERP at 145 MHz and about seven metres antenna separation resulted also in TVA free operation.

EMC achievements of this degree obtained by Grundig and most other West German manufacturers were of course not only appreciated by radio amateurs and their neighbours. The radio inspectors of the postal department (FTZ/DOC), service departments of television manufacturers, and the service men of appliance dealers saved time and costly, often frustrating, jobs finding the cause of TVA (also TVI and ITV) while trying to improve the compatibility (selectivity, immunity) of television sets and other appliances or services. But there were fewer cases for the lawyers!

More recent development showed that with improvement of the chassis earthing point selection similar EMC values could be achieved with fewer components. Readers may compare this television circuit with that of their own television set circuit. The comparison may indicate why filters do not help and why they experience TVA. Caution: with most televisions it is not advisable to conduct the EMC test described above with 100 volts of amateur band RF at the antenna terminal. The television front end may "go up in smoke!"

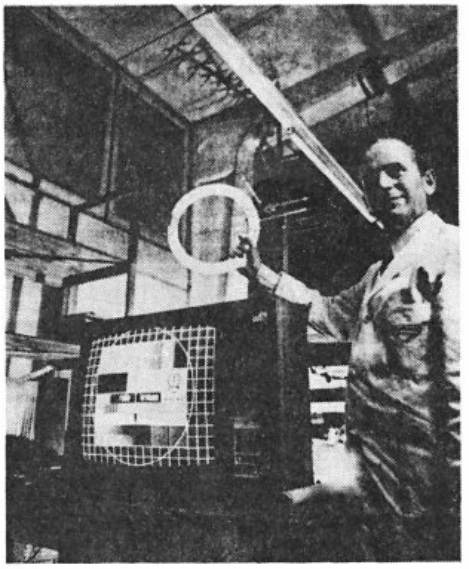

Figure 4 — The signal from an amateur radio transmitter is so strong above a Nord-Mende colour television set that a hand-held fluorescent light shines with full brightness. The amateur band beam and the television antenna are less than two metres apart and above the television set. No TVA results!

Several other West German companies also achieved very high immunity levels for their television chassis, avoiding RF pick-up by the chassis components and wiring. *CQ-DL* magazine 2/1978 (Figure 4) shows a Nord-Mende colour television set three metres underneath a mobile antenna and the RF field of a Heath SB-401 transmitter, with the television antenna nearby. The RF field was so strong, that a hand-held fluorescent light shone with full brightness! The next photograph shows the compact television chassis with individually shielded plug-in modules in the metal frame of the Nord-Mende colour television set. There are no unshielded hinged printed boards, acting like a receiver dipole, or wires going all over the place like an untidy bird's nest (Figure 5).

The problems still existing in DL are those millions of television and broadcasting receivers, which were manufactured and/or imported prior to the EMC efforts of the FTZ (DOC), the DARC, DIN (Standards) and VDE (Engineers' Associations) leading to the updated 1981 EMC Standards Law.

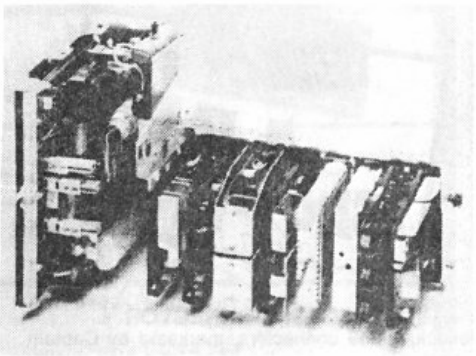

Figure 5 — The compact colour television chassis of a Nord-Mende receiver with individually shielded plug-in modules on a metal chassis. Correctly chosen earthing points and this shielding avoid RF pick-up by the chassis and leads. This results in a very high immunity level.

Even now some people are reportedly trying to bypass or to water-down the immunity standards. That is why DL9AH (*CQ-DL* 7/1986) recommends taking a two metre hand-held transmitter to the shop, if one intends to buy a television set or Hi Fi receiver amplifier. By holding the 1.5 watt rig close to the television set, etc one can get at least some idea of the immunity or lack of it. He describes also a small homemade 80 metre transmitter whip antenna and loading coil. By moving the antenna at 10-20 cm distance around a VCR, the one watt power from the transmitter shows clearly which VCR not to purchase. ***How popular would he be in our shops?***

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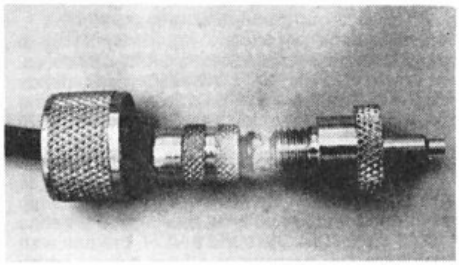
AR86

A R Showcase

TEFLOCK CONNECTOR

Teflock PL259 connectors, marketed by Captain Communications, fills the need for a high quality UHF and HF connector for RG58 cable. Unlike older designs, the Teflock can be secured in seconds, without soldering or risk of shorting. The centre conductor can be crimped or soldered, enabling quick, easy fitting away from the workshop. The braid and outer sheath are held to the connector by the shield lock.



For the novice, or anyone who is not expert at making up cables, the Teflock is the only connector worth looking at. Its high temperature Teflon insulator will not surrender, even when attacked by monster soldering irons!

The Teflock is Australian designed and manufactured, is actually cheaper than imported PL259 plugs and is easily re-usable.

For further information and pricing contact David Gill, Captain Communications, 28 Parkes Street, Parramatta, phone (02) 633 4333.

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EASY RTTY ON A COMPUTER

The latest version of the MFJ-1224 RTTY/ASCII/AMTOR/CW computer modem is now available from GFS Electronics.

Designed to interface between a computer and radio transceiver or receiver, the unit will allow coupling of all the above modes when appropriate software is used. As supplied, it is ready to go to air on a C-64 or VIC-20 personal computer. CW/RTTY software and cabling is provided.

A unique features which enables readability in extremely noisy conditions is a sharp eight-pole active filter preceding the receive detector which serves to clean-up a bad signal before presenting it to the detector.

The modem copies on both mark and space-tone, not just mark-only or space- only. Tuning in a signal is made very easy with a special built-in two LED tuning indicator. A wide range of transmitter keying facilities are provided, along with TTL and current loop outputs to drive a mechanical RTTY machine.

For further information contact GFS Electronic Imports, 17 McKeon Road, Mitcham, Vic. 3132. Phone (03) 873 3777.

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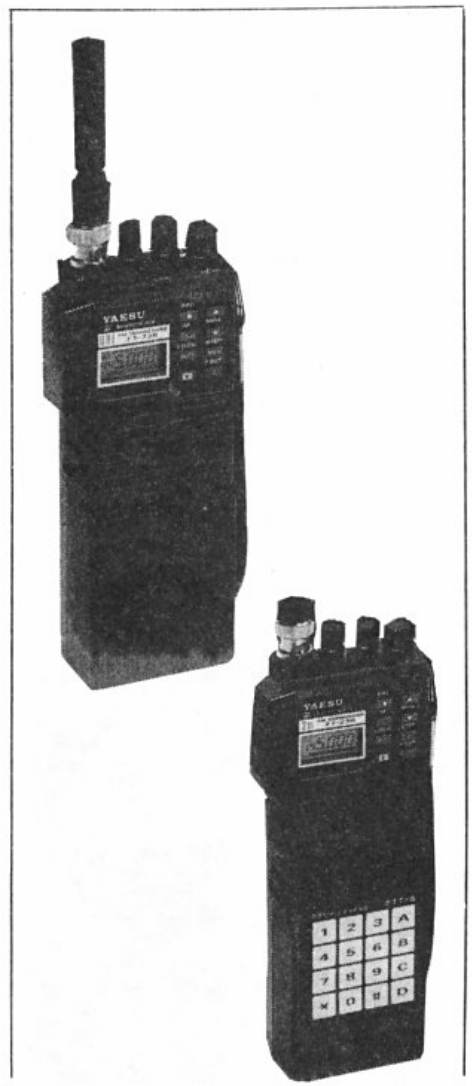
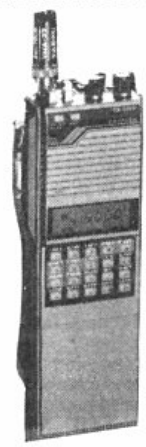


YAESU TRANSCEIVERS — FT-23R/73R; 727R & 767GX

The FT-23R and 73R are ultra-compact, microprocessor-controlled handies that offer the convenience of very small size and lightweight without limitations of features and performance.

Both units feature 10 memory channels which each store repeater shifts, busy channel and priority channel scanning, 1 MHz up/down stepping and a top panel rotary dial for memory and frequency selection. The LCD display includes a baragraph S/PO meter.

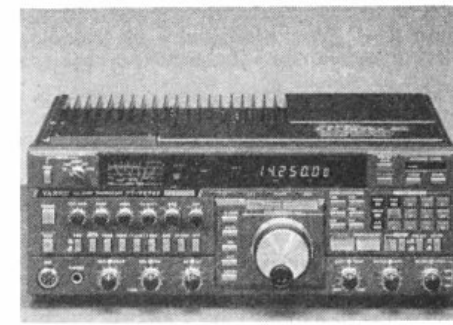
The FT-23R covers 144-146 or 144-148 MHz, whilst the FT-73R covers 430-440 or 440-450 MHz. A full range of accessories is available.



The FT-727R is a completely self-contained VHF/UHF FM hand portable transceiver providing up to five watts or 0.5 watts RF output on user-selectable channel steps across both the two metre and 70 cm FM amateur bands.

A full range of options are also available for the FT-727R.

The logically grouped controls on the FT-767GX make it easy to use, although on first appearances the unit's front panel is a mass of "whiz- bang" knobs and buttons. It is a HF/VHF/UHF all-mode transceiver.



The FT-767GX has through-chassis duct flow cooling which allows continuous key-down transmission for up to 30 minutes. No external heavy-duty power supply is required and the entire top half of the unit is diecast aluminium. A built-in automatic antenna tuner is incorporated in the unit: if the SWR exceeds 1.2:1 the tuner automatically rematches the antenna.

For further information and prices of these Yaesu transceivers contact Bail Electronic Services, PO Box 506, (or 38 Faithful Street), Wangaratta, Vic. 3677. Telephone (057) 21 6260.

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THE MANUFACTURERS OF R.F. AEROSPACE, ANTENNA SYSTEMS WOULD LIKE TO THANK THE FOLLOWING PEOPLE AND COMPANIES THAT HAVE GIVEN INVALUABLE HELP AND ASSISTANCE IN THE DEVELOPMENT OF THE MOST SOPHISTICATED ANTENNA PRODUCTS AVAILABLE IN THE WORLD TODAY.

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THE CSIRO, THE DEPARTMENT OF COMMUNICATIONS, MOBILE ONE PTY LTD, DICK SMITH ELECTRONICS PTY LTD, HAM RADIO OUTLET — USA, ANDREWS COMMUNICATIONS, ADVENTURE BROAD CASTING COMPANY, AUSLEC AUSTRALIA, ALCAN AUSTRALIA, THE UNIVERSITY OF NSW, HIGH TECH AUTO TOOLS PTY LTD, VK2AFS AND STAFF.

Club Corner

SYDNEY AMATEUR DIGITAL COMMUNICATIONS GROUP

The Sydney Amateur Digital Communications Group has been involved in the task of implementing the CCITT X.3 Terminal Interface Protocol (TIP) into the existing Amateur Packet Radio AX.25 Protocol. The SADCG is the first group in the world to do this, the Vancouver Amateur Digital Communications Group (VADCG) had implemented the X.3 TIP into the Vancouver Protocol.

The implementation of X.3 TIP into the AX.25 protocol puts Australia in the front line of world-wide amateur packet radio development, as up to now, the US and Canadian amateur radio groups have dominated development.

Currently, the AX.25/X.3 version is only available to users of VADCG Terminal Node Controllers (TNCs), but it is expected that TNC manufacturers will adopt the X.3 TIP standard, which will be commonly known as AX.3 TIP, as it features some extra commands that are only found in an amateur radio environment. The CCITT X.3 TIP recommendation is most commonly used in commercial packet systems.

—Contributed by Steven Blanche VK2KFJ, Secretary SADCG

ar

WESTERN ZONE

Western Zone WIA members are advised that the next Zone Meeting will be held at Lake Bolac, on Saturday, December 13, 1986.

—Contributed by Ray Curran VK3DQN, Secretary/Treasurer, Western Zone

ar

ST GEORGE AMATEUR RADIO SOCIETY

Over the last year, the St George Amateur Radio Society has been active both on and off the air.

In January 1986, the Society held its first two metre DX contest for the farthest simplex contact during the month. The joint winners were Bill VK2AGF, Warren VK2KGN, Lewis VK2LS, and Clive VK2DQE.

March saw the annual Alan Pettiford Memorial Auction with over $5000 of equipment, bits and pieces (and junk?) going under the hammer. Also in March, a number of club members set off to Mount Bindo, near Jenolan Caves, west of Sydney, to fix the club's DX repeater and to activate the club call sign VK2LE for the John Moyle Contest.

April saw the Annual General meeting with the only major change being Dion VK2PD, taking over from Alan VK2DQP, as President. Gordon VK2BGA, received the Viv Maidment Bequest Award for his talk called *When the Time Comes*, based on his work as an undertaker.

In June the club applied for and received the special call sign VK2IYP for the International Year of Peace (but, because of a typographical error, the call received was, in fact, VK21YP!). The call has been used quite a number of times including the Novice, St George 80 metre and Remembrance Day Contests.

The club held its second 80 metre contest in July, a four-hour free-for-all one Friday evening to help promote the club, the St George Award, and to get practice for the RD Contest. The winners for this year were Peter VK2EMU, Clive VK2DQE and Bill VK2AGF.

Phil VK2AXS, John VK2AUZ, and Geoff VK2SA, so much liked the idea that they decided to activate VK2IYP portable, at Mount Bindo for the RD Contest and managed over 350 contacts, but swore that next year they would go somewhere a little warmer (at least above freezing! ! !). About a dozen other club members were active in the contest.

September saw the renaming of the alternate auction as the *Bill Shakespeare Auction* in appreciation of the tireless work Bill VK2AGF has given to the club since it was formed in 1971, particularly with the auctions. Because of the increasing size of the auctions, it has been decided to change them from weekday evenings to a Saturday afternoon.

Now on the downhill run for the year, the club still has the Annual Dinners and Christmas Picnic to come before it all starts again in 1987.

The members of the St George Amateur Radio Society would like to wish everyone a Merry Christmas and a Happy New Year.

—Contributed by Peter O'Connell VK2EMU

ar

VICTORIAN DISABLED CITIZENS' AMATEUR RADIO GROUP — VK3APU

The radio club is in the process of a membership drive to get the operation of the club set up in the eastern suburbs of Melbourne. An invitation is extended to disabled people and people generally, to take an interest in amateur radio.

The club seeks new members to form a new committee to run the club under the support of the Victorian Disabled Citizens Association. The club requires a venue to be set up, close to rail transport and asks for suggestions as to where the club may be established. It must be noted that a suitable venue must have lockable security for the storage of club property under the Department of Communications rulings. The radio club has equipment ready for use immediately it has a venue, however it is in need of a full call licenced radio amateur to act as the club's nominee in accordance with regulations.

To bring these objectives to fruition, the club invites interested parties to come together at an agreed time and place to discuss matters relating to the club's functions.

Interested people may contact the club by writing to: Michael Byers, President, Victorian Disabled Citizens' Amateur Radio Group, PO Box 466, Ringwood, Vic. 3134, or telephone Michael Byers on 722 1645 or Kelvin Lee 391 6310.

The Disabled Radio Amateurs' Club has been operational for over 13 years and has achieved a great deal of success, it is therefore envisaged that the Victorian Disabled Citizens' Amateur Radio Group will achieve the same successes.

—Contributed by Kelvin Lee VK3ZSQ, Member of DRAC and VDCARG

ar

DEVIL NEWS from the North-West

There were 16 members and two visitors in attendance at the last meeting of the club. Apologies were received from VK7s ZAP, KH, RN, AX and Florian Biner, who is on a visit home to Switzerland. A warm welcome to new member, Gordon Par. Gordon is interested in the technical side of radio and micro-computers.

The business side of the meeting was dealt with swiftly and a very interesting evening of discussion followed. Final details were discussed for Camp Quality which will be held from December 8 to 14. It is pleasing to report that there is more than enough volunteers, and plenty of equipment in the way of radios and aerials has been loaned for the time required.

It was announced that an Amstrad Computer Group has started in the North- West and any owner interested is welcome to attend their meetings.

One of our newer members, who has been very active in the club as News Co- ordinator for the Branch since arriving from VK5, has left to live in VK1. Thank you Frank VK7ZFH, for all your help in the short time you were in Tasmania and best wishes to you and your family in the future.

There will be communications activity at Easter time at the Horse Trials. There has been a good response from members and it appears there is enough volunteers.

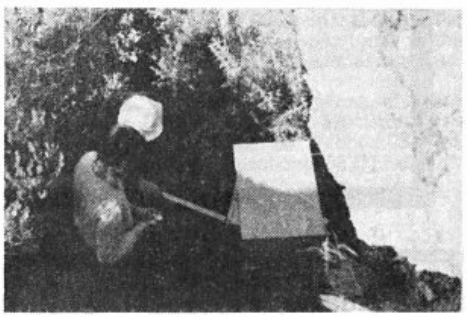
The Club Radio Room is almost ready for habitation, there is only the carpet to be laid, so volunteer help is sought.

ACTIVITIES WEEK FOR DEVONPORT HIGH SCHOOL — VK7DHS

Tony VK7AH, and his group had a very successful week. Activities included a tour of the Able Tasman Wireless Room and a demonstration of

From left: Andrew VK7ZHA and Andrew VK7ZAP.

Greg VK7ZBT, rests on Mount Duncan.



Andrew VK7ZAP and Tony VK7AX, attended the installation of the special communication repeater, VK7RAD, on Mount Duncan.

life-boat drill, a walk to the summit of Mount Duncan to the site of one of our repeaters, a display of Army radio and a field exercise in trucks and jeeps to witness radio demonstrations.

Tony thanks all who assisted with the activities, and especially to Jack VK7WJ, for his assistance with lectures and the amount of time he gave.

NORTH WEST ATV GROUP

The first meeting of the group was held on October 15, at the home of the group leader, Tony Bedelph VK7AX. There were 13 in attendance.

Tony said that is should be emphasised that this is not a "splinter group" to the Wireless Institute of Australia, and is to support the Institute as required.

The evening was spent discussing the group's plans and intentions, which include the promotion of ATV activities amongst amateur radio members in conjunction with other radio activities.

It is hoped to encourage activities and provide assistance to interested people, support and maintain VK7RTV and VK7RAE repeaters, encourage outdoor activities using portable video equipment, provide assistance to organisations requiring video taping, etc, reintroduce ATV broadcasts and to include the occasional social outing of the group.

—Contributed by Max Hardstaff VK7KY assisted by Tony Bedelph VK7AX, with photographs courtesy Jack Wright VK7WJ

ar

WIA, CENTRAL QUEENSLAND BRANCH

The Lions Clubs of Mount Archer and The Caves, in association with Broadcast Station 4RO and the

Lyle VK4ALD (with hat) and Robb VK4TKA.

The 20 and 40 metre dipoles for Leisurefest 1986.

Etna Creek Prison Farm, organised a Leisurefest 1986, from September 19-21, 1986.

The Wireless Institute of Australia, Central Queensland Branch, obtained a site in association with the Rockhampton/Fitzroy State Emergency Service.

The Station VK4WIR was operated on Sunday, September 21, 1986 from 2300 to 0700 UTC.

Various visiting stations from the Central Queensland District and Gary VK4PY, from Gympie, called in.

The station was operated with a FT-707 and TS-520 plus various two-metre equipment. Antennas for the day were 20 and 40 metre dipoles and a 15 metre whip.

Even with the close proximity to 4RO and other electrical devices, the station was able to make contact with the stations below.

VK4BMW Max	7.075 Mount Isa
VK4FNQ John	7.075
VK4RR Richie	7.110 Moranbah
VK3RC/BWI	7.130
VK6ART	14.106 Travellers Net
VK4PY Gary	2 metres Portable Gympie
VK4KX	2 metres Portable Gladstone
VK3TE Stan	14.140 Melbourne
VK2DEY Stan	7.086 Murwillumbah

VK4WIR also called into the net after the VK4 News Broadcast on the Sunday on 7 MHz.

All stations contacted will receive a VK4WIR QSL card with *Thanks/ No Return Card Required.*

For the day, a special information sheet, headed *Amateur Radio and You* was produced. This was handed out to all likely inquiries.

—Contributed by Nick Quigley VK4NFL

ar

CENTRAL COAST AMATEUR RADIO CLUB

All amateur radio operators, their families, friends and anyone interested in amateur radio, are invited to attend the Central Coast Amateur Radio Club's 30th Annual Field Day on Sunday, February 22, 1987 at the Showground, Showground Road, Gosford, NSW.

Events at the Field Day will include radio and non-radio events to cater for all the family.

The same catering arrangements as in 1986 will apply. You may bring a picnic lunch or purchase food from the Take-away Food Bar in the Showground. Tea and coffee will be available from 8 am to 5 pm (separate from the Food Bar) at no charge.

Accommodation is usually scarce on the Central Coast at Field Day time, and early booking is advised.

Morning trains departing Newcastle and Sydney and arriving at Gosford between 8.30 and 10.30 am, are met at Gosford Railway Station and a courtesy bus is provided to the Showground. For return transport in the afternoon, contact *Information* one hour before the departure time of the train.

The Field Day will be held whether the weather is wet or dry as there is plenty of shelter at the Showground.

Items for disposal must be booked in before 9.30 am on the day. Catalogue forms and lot numbers must be obtained in advance. Contact Bill Smith VK2TS, RMB 4525, Gosford, NSW. 2250 or phone (043) 74 1207 after hours, for forms and lot numbers. Late arrivals or equipment improperly tagged or catalogued may be refused. A commission is charged on all sales. Lot numbers and forms will be available at the Showground on Saturday afternoon, February 21, 1987.

Companies, persons, groups or clubs wishing to set up a table or display at the Field Day should contact the Central Coast ARC at PO Box 238, Gosford, NSW. 2250 before January 3, 1987. Any telephone inquiries may be made to John Pogson VK2DBC, on (043) 25 9352 between 8.30 am and 4.00 pm weekdays only.

The VK2 QSL Bureau will be in attendance. Bring your QSL cards for the "Calls Present" board.

For full program details write, enclosing a SASE to CCARC, PO Box 238, Gosford, NSW. 2250.

—John Pogson VK2DBC, for the CCARC Field Day Committee

ar

FCC PROPOSES. . .

The FCC has proposed authorising additional frequencies between 7.050-7.075 MHz for Novice and Technician operators in Alaska, Hawaii, Region 2 Pacific Insular Areas and the Caribbean Insular Areas.

—From *The ARRL Letter* October 13, 1986

SPECIAL EVENT CALL SIGN

In celebration of United Nations Day, 4U1UN, the UN HQ station in New York City, used the special call sign 4U41UN. This one-day-event was held on October 24, and 4U1UN counts as a separate DXCC country.

—From *The ARRL Letter* October 13, 1986

VK3 WIA Notes

NEW MEMBERS

A warm welcome is extended to the following new members of the VK3 Division, as at September 25, 1986.

Polonia Amateur Radio Club, VK3CRP; N Campbell VK3QX; Hans Eisink; C D H Longfield; John Melia VK3QD; Margaret Nally VK3QU; John Nissinen VK3YNN; Philip Pavey VK3BHN; School of Electronics Technology — RMIT, VK3COT; Keith Turner VK3CWT; Allan Bengtsson VK3PLI; and Ab Aziz Hassan VK3XNX.

ar

MORSE BEACON

A Morse code practice beacon, VK3RCW, is operating on 144.950 MHz and is located at Waverley in Melbourne's eastern suburbs.

It sends random groups of letters and figures at two speeds, 5 and 10 WPM. The 24-hour a day beacon should prove popular amongst those wanting to increase the code speed.

Magazine Review

Roy Hartkopf VK3AOH
34 Toolangi Road, Alphington, Vic. 3087

G General ***C*** Constructional ***P*** Practical without detailed constructional information ***T*** Theoretical ***N*** Novice ***X*** Computer Program

SHORT WAVE MAGAZINE, June 1986 — Simple Sideband Part 1. ***(P N).***

RADIO COMMUNICATION, October 1986 — Measurements on VHF/UHF Front Ends ***(P N).*** Transmission Line as an Impedance Transformer ***(T).***

HAM RADIO, July 1986 — VHF/UHF Special Issue ***(G).*** Strip-lines ***(C).*** UHF Low Noise VCO ***(P).*** Using the Multimeter ***(N).***

CQ-TV No 135, August 1986 — TVRO Receiver ***(G).*** 1986 BATC Show ***(G).*** ATV Circuits and Ideas and General Information.

WHAT'S NEW IN ELECTRONICS, August 1986 — Description of the Recent Developments in Components, Test Equipment, Integrated Circuits, etc.

RADIO ELECTRONICS, May 1986 — Kirlian Photographs ***(G).*** Surface Mount Technology ***(G).*** Computer Digest Section included in the magazine.

ar

QSP

RADIO NAVIGATION SYSTEM on 432 in CANADA

CRRL has become concerned about a new radio navigation system operating from the west end of Lake Ontario on or about 432 MHz. The frequency assignment appears to be legal. Amateurs use the 430-450 MHz band on a secondary basis. However, the assignment appears to have been made without due regard for potential interference. The wideband nature of the system's signals threatens weak signal terrestrial and EME communications near 432 MHz and satellite communications near 435 MHz. Also, amateur signals could inadvertently interfere with the system, creating possible danger for ships that rely on it. CRRL is pursuing the matter closely.

—From *The ARRL Letter* October 13, 1986

Forward Bias

Ken Ray VK1KEN
Box 710, Woden, ACT. 2606

After a long absence, a special bumper issue of *Forward Bias* in time for Christmas.

1987 SUBSCRIPTIONS

At the September meeting, the members of the Division voted to keep the VK1 component of the fees at the same level as the previous two years — $9.50. Due to a steady increase in the number of members, and tight financial management, we are able to run against the general trend in the country and not increase charges.

WIA 75TH ANNIVERSARY MEDALLIONS

A little belated, but the following VK1 amateurs were awarded 75th Anniversary Medallions for their outstanding contribution to the advancement of amateur radio and the WIA.

VK1AOP	Ted Pearce
VK1DS	Peter Smith
VK1VP	Eddie Penikis
VK1ZAH	Dick Elliot
VK1TH	Ted Howell
VK1DA	Andrew Davis
VK1DG	Dennis Gibson
VK1EP	Eric Piraner
VK1GB	George Brzostowski
VK1TR	Ted Radclyffe
VK1UE	Richard Jenkins
VK1OK	Kevin Olds
VK1MX	Bill Maxwell
VK1KAL	Alan Hawes
VK1MM	Fred Robertson-Mudie
VK1ZJR	Ray Roche
VK1RH	Ron Henderson
	Brian Davis

Space precludes describing the many ways in which the above have served their fellow amateurs, but all have made significant contributions to our hobby, and rightly deserve our congratulations.

PACKET RADIO

At the time of writing, the VK1 Division was in the process of establishing a packet digipeater. The digipeater will be located on a fire tower in the Kowen Forest, a few kilometres to the east of the centre of Canberra. While technical details are not yet confirmed, the digipeater should operate on 147.575 MHz, using the call sign VK1RPC. Output power will be 25 watts, and should give good coverage to Canberra and the surrounding area.

The digipeater is built around the TAPR TNC unit, and supports the AX.25 protocol. In the future, a more ambitious installation may be installed, supporting a number of protocols, and forming part of a major packet radio network.

ar

VK2 Mini-Bulletin

Tim Mills VK2ZTM
VK2 MINI BULLETIN EDITOR
Box 1066, Parramatta, NSW. 2150

Firstly, may I wish all members a Happy and Merry Christmas. The holiday time of the year is a break for most of us.

The last broadcast for 1986 will be on Sunday, December 21. The first for 1987 will be January 11. The Divisional Office will close for a similar period, the exact dates will be notified later.

About the time you receive this issue of AR, many of the readers, mostly those who have been a member for some time, will be receiving their annual renewal notice. (Those who joined recently are billed in the month they joined). There has had to be a rise in the annual subscription. The Federal element has gone up by $2.50 and the Division by 50 cents. This is the first rise this decade in the Divisional component. The full member subscription for 1987 is $34.50, with associates $32.50. This still makes the VK2 Division the second lowest fee structure.

A vacancy occurred on Divisional Council when Mary Jane Douglas VK2CMJ, moved to the north-western part of the State. The position will be filled for the remainder of the Divisional Year by Arthur Outteridge VK2YE, who was the unsuccessful candidate in this year's election.

A reminder to the various office bearers and groups within the Division — the year for the Division ends on December 31. Any financial reports, etc must be submitted by this date. Reports from office bearers for the annual report should reach the President by mid-January.

There was a poor response to the bookings for the annual dinner scheduled in October and the event had to be postponed. May things have gone quiet in amateur radio? A check recently on the information sheets from affiliated clubs showed that out of 37 registered, 20 had not returned this year's information, despite having been sent two separate postings with the required forms during the year. Since then, a third form has been sent. One group had not responded to any posting since 1983! It is also noted that when a club has a change of office bearers, often there is no old paperwork handed on. The Divisional Office receives several calls from the new secretary of a group saying I have just taken on the job but I have no information, would the Division please send something out?

GOSFORD FIELD DAY

In *Club Corner* you will see information about the Central Coast Field Day, which is to be held on Sunday, February 22. This will be the 30th annual event on the Central Coast.

If you have an event coming up and wish publicity for it in AR, please give about three months warning by submitting copy. This will bring it to readers about a month before the event.

ROSS HULL VHF CONTEST

Can you support the event this year? If so, check the rules in November's AR and enter when you can. Most importantly — ***send in your log.***

PUBLICATIONS

A reminder that there are stocks of the current Call Book and most publications available from the Divisional Office. If your household is perplexed for a Christmas present for you, drop a hint that you would like a book. A list is available, upon request, from the Office. Telephone (02) 689 2417, Monday to Friday, 11 am to 2 pm or Wednesday 7-9 pm.

There will be limited copies of the International and USA Call Books and the 1987 ARRL Handbook arriving early in the new year. Cost is unknown until the shipment arrives.

Do you find it hard to catch up on the news? The Broadcast time-slots do not suit? You only hear about something days after it was on the Broadcast? And then the person telling you only half heard it or was told by someone else. Then maybe the answer is to check the recorded news summary available from Monday to Saturday on (02) 651 1489.

NEW MEMBERS

A welcome to the following new members for October.

J B Elsing Assoc, Bowral; J Hannema Assoc, Rose Bay; M J G Knorr Assoc, Unanderra; A M Love VK2EZF, Crows Nest; D R Moore VK2XAR, Leichhardt; S J Oldroyd VK2JSO, Concord; S J Rogers Assoc, Greystanes; G J Selwood Assoc, Orange; D J Stephen VK2POW, Mullumbimby; P J Turner VK2ZNK, West Ryde; I G Waite VK2MMW, Bingara; D A Waugh VK2JDW, Blacktown; D G G Lengronne VK2MAI, Lidcombe.

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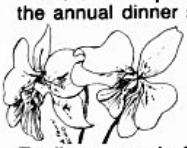

VK4 WIA Notes

Bud Pounsett VK4QY
Box 638, GPO, Brisbane, Qld. 4001

To all amateurs in Australia and their families, may we, the amateurs of Queensland, wish each one of you, a very Merry Christmas and a Safe, Peaceful and Prosperous New Year.

GYMPIE GOLDFEST 1986

Held on Saturday, October 11, this first Gympie Hamfest was a huge success. The organising committee of the Gympie Amateur Radio Club can be well pleased with the interest shown in this event.

Some 200 or so amateurs and friends visited the venue, the Chatsworth Hall, a few kilometres north of Gympie. It was a great day for meeting old friends, looking at the displays, listening to lectures and seeing some demonstrations of state-of-the-art packet radio or taking part in fox hunts.

Amateurs came from far and wide and a quorum of Divisional Councillors were there. David Jerome VK4YAN, the Queensland Divisional President, was introduced to the gathering by Alan Gardner VK4BWG, to officially open this first Gympie Goldfest, but certainly not the last.

CENTRAL QUEENSLAND SIX METRE REPEATER

The planning for this repeater took a step further when the Queensland Council approved a recommendation from QTAC that a six metre repeater application be established in the Rockhampton — Gladstone area. The application was submitted by the Gladstone Amateur Radio Club, who were commended for their excellent presentation.

Now, all that remains is all the hard work involved in getting this repeater on the air. Rockhampton and Gladstone amateurs are co-operating in this project. Progress reports will be made as time goes by.

VISITING NORTH QUEENSLAND IN 1987?

If you are planning a trip into tropical Queensland in the new year, think about making it towards the end of September.

Why? That is when the North Queensland Convention will be held under the auspices of the Townsville Amateur Radio Club. It is held every two years and visitors are made very welcome. If you have not tried North Queensland hospitality, you haven't lived!

—Bud VK4QY

QUEENSLAND NETS

The North Queensland News Broadcast Net is held an Sunday nights at 8 pm on 3.605 MHz. Operator is Evelyn VK4EQ using the Club Call Sign, VK4WIT.

—Contributed by Jeanette Mann, Secretary, Townsville Amateur Radio Club

ar

Five-Eighth Wave

Jennifer Warrington VK5ANW
59 Albert Street, Clarence Gardens, SA. 5039

I was pleased to receive a letter from Graham VK7ZO, recently regarding my paragraph in October's AR about a home-brewing frequency on 3.579 MHz. Graham says he has recently built the Drew Diamond VK3XU FET4 Tx four watts VXO, and has obtained crystals for that frequency. At the time of writing to me, Graham had only had one contact, and that was with Bob Tester VK5MV, one of our well-known Slow-Morse Panel members, from Mount Gambier.

Dare I say, Graham, that maybe one reason for the lack of contacts was the fact that you have been sending CW at 20 WPM! The group who first promoted the Home-Brew Frequency-idea were the Port Lincoln ARC, who at the time were tutoring groups of school children from Port Lincoln High School and St Joseph's College. These children were building their home-brew QRP rigs as part of the project, and although they were learning CW, I imagine most of them were only up to five words-per-minute for the Novice Licence. I know that their teachers in CW, Jack VK5AJK and John VK5AEP (both Slow-Morse Panel members), could handle that speed, but perhaps some of the students would be encouraged to answer something a little slower.

Anyway Graham, don't give up trying just yet, and perhaps those of you with higher power and commercial rigs could leave the frequency free if possible to give our home-brewers a spot to find each other. Your reward may not be in Heaven, but it will certainly be in encouraging experimenters and home- brewers, many of them young — a breed we are often told, that is dying out with the introduction of "Black Boxes."

Speaking of young experimenters, we gained some excellent PR on Channel 7's *State Affair* thanks to a segment that they did on Grant Willis VK5ZWI. At 15, Grant is the youngest ATVer in VK5, and possibly Australia, a very talented young man who looks like having a big future in electronics. We have already had the benefit of his experience when he helped John VK5EV, to set-up the ATV display at Marion Library. Congratulations Grant and thank you once again for that excellent piece of PR.

Keith Ring VK5KH, at Kapunda, recently donated a Panda rig to the WIA for use on 40 metres for the Sunday Morning Broadcasts, in AM. The main problem seemed to be finding somewhere to house it for the time being, as none of the current operators needed it immediately. Our thanks go to Ross Dow VK5KF, for finding it a 'house-room' and to Marlene and Brian Austin VK5QO and VK5CA respectively, who received the 'hernias' transporting it. And, needless to say, many thanks to Keith for the donation.

As this will be the last issue for the year, I can't help looking back and marvelling at all the things that have been accomplished in this, our Jubilee Year. In fact, of course, it was more like 18 months, as we kicked- off our activities in the Renaissance Centre, with a week-long 'launch' in May of last year. Since then, VK5JSA has been heard rail-mobile across the Nullabor; from the Cape Willoughby Lighthouse and the *Philandra* maritime mobile — also maritime mobile in the *Twin Gulf Yachting Regatta* and from on board the *Failee*, and the Paddle Steamer *Industry*.

The *Trade Train* was a major activity which involved amateurs from all over the State and there were activities which were as wide spread and diverse as the opening of the *Horse Drawn Train* at Victor Harbour, and the viewing of *Halley's Comet* at Stockport. There were so many other activities which took place, and some that we planned which, unfortunately, did not come to fruition.

The one name that comes to mind when we talk of Jubilee 150 is Graham Horlin-Smith VK5AQZ, and we could not let the year end without thanking Graham for all the work that he has put into the role of Co-ordinator. Without his foresight and drive, many of our activities would never have got off the 'drawing-board' but let us not forget the many others who have shared some of the glory (and sometimes some of the blame), but without whom even Graham's ideas could not have happened. It is probably unfair to name some and not others, but three names do standout from the crowd.

Rowland VK5OU, who has been responsible for organising and sending out the J150 Awards; John VK5SJ, who set up special nets and spent hours on air giving out VK5 contacts (not to mention the *Marion Centenary Activities*); and Peter Koen who thought up a new slogan and painted signs for most of the major activities. To these and to all the hundreds more up and down the State — the VK5 Division says thanks.

. . . BUT WAIT! ! !

It isn't over yet. On December 28, 1986 (the actual day that we become 150 years old) Ken Westerman VK5AGW, and a group of Glenelg-based amateurs will be using the VK5JSA call sign, possibly for the last time, at the Old Gum Tree, Glenelg — the place where South Australia was first proclaimed a State by Governor Hindmarsh.

Do look out for Ken and Company, and do not miss out on what may be your last chance to work this very special call sign.

I would like to take this opportunity to wish all a very happy Christmas and a year of good propagation and low noise levels!

DIARY DATES

DECEMBER

9 Christmas Meeting at 8 pm. *Looking Back at Radio in SA — an Audio History* produced and presented by John Hampel VK5SJ and Gordon Welsh VK5KGS, with the help of Kevin Kitto and the Glen Lea Singers — Woodville Community Hall, 64C Woodville Road, Woodville (between Port Road and the Railway Line, on the right-hand side, before the Council Offices).
Bring your partner and also a plate of food. The WIA will provide chicken and salad platters, sausage rolls, pies and pasties, all drinks, etc.
Interstate and country members welcome.

JANUARY

27 Traditionally a *Buy and Sell* night. ***Please note*** it is a fourth Tuesday, so excuse the QSL Bureau, Books and a short Business Meeting preceding the "Entertainment."

JSA AWARD WINNERS continued

628	W7DU	705	K4FSJ
629	VK2JWE	706	K1GZP
631	VK2AKU	707	KF5GA
632	ZL2BDF	708	KA6MBF
633	VK2EBX	709	KJ4BK
636	VK5IV	710	N2GOI
637	WB5MNV	711	N8GKR
639	VK3AUM	712	W5WJW
640	VK5ZPW	713	W0PUR
643	VK5KDD	714	WJ5H
645	VK8XV/M	715	KB6LBF
646	VK5NCM	716	N3ESS
647	VK5RK	717	KB5FC
653	WF5A	718	KI4BQ
654	WF KJB	719	KQ9Z
659	YB3CKY[1]	720	N3DLG
660	V85WS[2]	721	JA3GHA
661	JL3EQP	722	N6LHF
662	JG3QCW	723	KA9UVQ
663	W4RZN	724	WA5SWV
664	KA6OGC	725	VK2DET
665	WB6OHJ	726	VK5NTX
666	KA3DBN	728	K5HUT
667	KB2QN	729	WB2KSQ
668	KA2UFA	730	W2EKO/4
669	VE3HW/W6	731	WA3MEM
670	WW4Q	732	KA7VQX
671	NL7AT	733	K4BNX
672	K4DGV	734	KA5ZJA
673	VK5AX	735	N5GYT
674	NJ5L	736	KA0SRC
675	N9EOK	737	KD2KS
676	WA7GQA	738	N5EYT/3
677	W9BM	739	KA8MNS
678	KA1WZ	740	K1CLN
679	KA9CJC	741	N4MAD
680	V44KQ[3]	742	W2BIE
681	KA7YOG	743	WH6CWC
682	KA3LHP	744	WN6J
683	N4HXK	745	N4IBN
684	KA7MUW	746	KA0UWN
685	WA8URR	747	NM5N
686	KB6MJQ	748	N6JCS
687	K5ABD	749	G4MTC/W1
688	W Smith[4]	750	BRS 87801
689	KB6CGP	751	KA1EZR
690	AA4HX	752	KD2HQ
691	KA9VAC	753	KJ4VQ
692	KA4DME	754	WD8ECM/M
693	KB4HAH	755	G4VOE[5]
694	NH6FU/KH9[6]	756	JA3BOA
695	N0GLQ	757	JE2ZXX
696	WD4OSS	758	VK5KAK
697	KA5ZIT	759	KA7SKE
698	KA3PIT	760	VE7FWF
699	KA3NCJ	761	G3NOF
700	N9EZF	762	WD4KCW
701	KA0GGQ	763	9Y4RJS
702	WB9HPR	764	HB9VQ[7]
703	KD5WR	765	DL2RBK[8]
704	WB9ZOP	766	JH1ROJ

1. First Indonesia
2. First Brunei
3. First St Kitts
4. Canadian SWL
5. First England
6. First Wake Island
7. First Switzerland
8. First Germany

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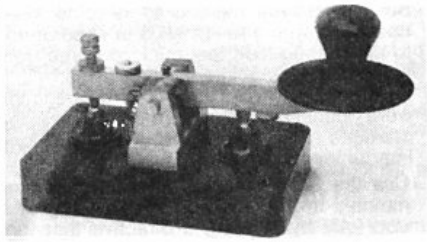

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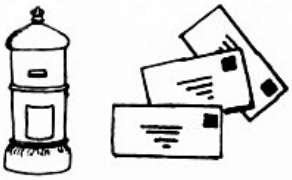


Over to You!

Any opinion expressed under this heading is the individual opinion of the writer and does not necessarily coincide with that of the publisher.

HAMADS

I can attest to the "pulling" power of Hamads, inasmuch that I received the first reply to my advertisement in September's magazine, on September 5. The chap asked for 48 hours to consider but I told him that it was first come, first served. Anyway, next day another customer.

The first person came within 24 hours, discussed the equipment, and swapped some cash my way! From then on an irregular series of others were in contact, the last on September 25.

In view of this success I will use Hamads again (this month, in fact)!

I was most impressed with the October issue of *Amateur Radio* and would like to congratulate all concerned with the edition and the many who contributed articles.

Yours faithfully,

R Easterbrock VK3RM,
c/- Eliza Lodge,
347 Nepean Highway,
Frankston, Vic. 3199.
ar

TRAFFIC SYSTEM

The Mexico, now El Salvador earthquakes have highlighted these ideas.

I would suggest some close liaison in the USA between the Pacific Area Net (PAN) and Eastern Area Net (EAN), so the the National Traffic System (NTS) can respond to changing propagation from week to week. During the Mexico and El Salvador earthquakes, propagation changes seriously affected Australia's link to these areas via the two international traffic nets — International Assistance and Traffic Net (IATN), which feeds EAN and Australian-American Traffic Net (AATN) which feeds PAN.

This would develop an International Emergency Communication preparedness arm within the NTS.

Such an international co-ordinator/s based in the USA could:

1 Send directives needed to re-route international traffic through NTS in accordance to the propagation feedback received from the EAN and PAN international arms.
Comment: It would be nice if propagation were constant to Australia. This idea attempts a solution to the problem of long international links.

2 Use the expertise developed on the international traffic nets normally feeding EAN and PAN by sending a directive that they establish links to any part of the world affected by a disaster.

3 When any disaster occurs world-wide, to contact the US administration and foreign consulate to seek immediate verbal authority to handle Third Party Traffic to that country.

4 To expand during any disaster anywhere, the normal international schedules with Australia who depend almost totally on relaying their disaster welfare traffic via stations in the USA (600 messages to Mexico and 200 to El Salvador). This includes activating standby emergency schedule 0800 UTC, 7.228 MHz ±QRM, especially set up when contact is lost on 14 MHz to the USA.

5 To send a directive to Australia, that traffic capabilities to a specific disaster area, not normally covered by the 40 USA Third Party Agreements, exist so that amateurs in Australia can let the public know that amateur radio has a capability to handle their welfare inquiries.
Comment: Austra'ian amateurs can pass traffic to any country the USA has an agreement with, provided we do it via a US or Canadian station. We now also have an agreement with Israel; ie currently we only have three direct traffic agreements.

Yours faithfully,

Sam Voron VK2BVS,
Co-ordinator ATN,
2 Griffith Avenue,
Roseville, NSW. 2069.
--

COUPLE OF THINGS WRONG

The April issue of *Amateur Radio* with its striking cover just came into my possession, or I would have commented earlier.

On page 31 is the following note:

> The ARRL has refused an FCC proposal that would turn the 52-54 MHz portion of the six metre band over to non-amateur computer enthusiasts who would use it for data exchange.

There are a couple of things wrong with this. First of all, this is not an "FCC proposal." It is simply a petition for rule-making, originating from outside the Commission, on which the FCC has taken no position at all. In accordance with the Administrative Procedure Act, the US legislation which among other things guarantees the right of public participation in the rule-making proceedings of executive agencies, the FCC has simply established a file number for the proposal and made it known that the public may comment on it.

ARRL has done so, and of course our comments oppose the proposal. With any luck, the Commission will simply deny the petition and terminate the proceeding since there are serious technical flaws in it. Should the Commission wish to seek further comment it may do so either by issuing a Notice of Inquiry, or by going one step farther and issuing a Notice of Proposed Rule-making in which specific new rules would be proposed. It is only the last option which could correctly be characterised as an "FCC proposal." In the case of either an NOI or an NPRM, there would be an additional opportunity for opposing comment by ARRL and others.

The second problem that I have with the brief item is that it conveys that ARRL has the power to "refuse" proposals which impact the amateur service. I wish this were true! The fact is that, while ARRL has considerable influence with FCC, the Commission is under no obligation to follow our desires. This is one reason why we are so anxious that amateur radio speak with one voice to the FCC — that of the League — just as you would wish the representative voice of Australian amateurs with the Department of Communications to be the WIA.

I completely understand the difficulty any editor faces in condensing a complex issue into a few words, and hope these comments will be accepted in the constructive spirit in which they are intended.

73,
Sincerely,

David Sumner K1ZZ,
Executive Vice-President,
The American Radio Relay League, Inc,
Newington,
Connecticut. USA.
ar

DE-SEXING ENGLISH

In reference to the Editor's Comment, October AR and the use of "draftsperson" instead of "draftsman" or "draftor."

The present cumbersome attempt to de-sex English is hilarious!

Consider using "Chairperson" and "Spokesperson" for chairman and spokesman when all authoritative dictionaries define both these latter words as a "person who etc."

Such stupidity makes "woperson" of woman and "feperson" of female!

But why "person"? — "per" (by means of) and "son" (equally male as "man").

With Leader, Stenographer, Laborer, etc as precedents, was it too logical, simple and consistent for the woperson de-sexers to use "Chairer" and "Speaker for"?

Errol Chick VK3GG,
15 Vida Street,
Essendon, Vic. 3040.
ar

TELEVISION

I was pleased to read the correction in the Editorial, and the information from *Wireless World*. 1936, via VK3ZXU, given in the October edition of *Amateur Radio* concerning the inauguration of regular experimental television transmissions from Alexandra Palace, in November 1936.

I would like give further information showing that this was not the beginning of the transmissions from Alexandra Palace.

In 1935, I was a school-boy at a boarding school in Hertfordshire, gleefully absorbing wireless information from the magazine *Hobbies*. Another boy (H O D Thwaites) and I built three valve radios and later shortwave adaptors to plug into the detector valve sockets so that we could become shortwave listeners on the amateur bands. In the same year we formed a wireless club and built a 32 definition crude scanning disc television receiver. I wrote to Alexandra Palace to say that I had observed a face through the magnifying glass — the image coming through the spiral of 32 holes in the synchronous motor driven scanning disc from the photo-electric cell behind.

A nice letter came back saying that if the headmaster gave his approval, we could become a Baird Television Monitoring Station. This approval was given, and along came a beautifully made 32 definition Baird Mirror Drum television receiver, which we used to send a monthly log to Alexandra Palace.

In 1937 or 1938, after I left school, I remember watching programs on an all-electronic 405 definition Marconi-EMI receiver at the home of an engineer friend of my father. All transmission stopped, of course, at the beginning of World War II.

One last item of note — after being a SWL and electricity supply engineer for most of my life, I nobly failed the novice theory examination in 1981, but passed in 1982. There must be a message in that!

73,

Geoff Wallace VK4VLI,
8 Orana Street,
Victoria Point, Qld. 4163.
ar

A CRY FROM THE CROWD

Please hear a cry from one of the crowd of frustrated home- brewers in VK-land.

New black-box equipment prices are said to have nearly doubled in the last 12 or so months. Even quite simple pieces of amateur radio equipment are offered at prices which, on consideration, seem high. Home-brewing is said to be the answer!

The amateur radio candidate and novice is often told about the joys of home-brewing, but unless they already have the parts, or can find them at the local electronics store, they are facing considerable difficulty. The older old-timers may have a stock of salvaged parts in the junk-box, but I would say that the novice usually has not.

Sometime ago I took it into my head to build a transmatch type ATU and to re-build a power supply for a hybrid rig which I had obtained in good order. Much effort went into getting enough high voltage capacitors for the filters, and as for bleed resistors of sufficient power ratings — what a laugh. The hunt for a filter choke was eventually successful. The rig, now being operational, at least as far as receiving goes, the transmatch is next.

In fact, the search for transmitting variables began nearly 12 months ago. Seeing advertisements for them in AR and other places, I telephoned, only to be told that they had been sold, even prior to my copy arriving in the mail.

On a recent visit to Brisbane, I telephoned all the likely, and some unlikely, suppliers in the *Yellow Pages*. Quite a number of them did not even know what I was talking about. Most of those that did know said; "There's no call for them," — but there must be a demand if the few second-hand ones on the market get snapped-up almost before being advertised.

Perhaps the frustrated home-brewers have become sick of being told; "There's no call for them," and have stopped asking for transmitting variables, roller inductors, ceramic wafer switches, power resistors, high inductance filter chokes and so forth.

Or perhaps the profit margins on them are not so great?

Now I can hear a few saying; "Why doesn't he build his own?" Few of us have the facilities or skill to build variable capacitors, but we can assemble them into working devices.

A recent Prime Minister said; "Life wasn't meant to be easy." Someone else said that it wasn't meant to be impossible either. So come on all you frustrated home-brewers, put a little pressure on your favourite electronics store for the parts you require but cannot obtain. Come on retailers, some of these things will sell quickly. Come on magazine editors, what about a *Where to get it!* section for homebrewers. It is no good publishing home-brew articles if readers cannot obtain the necessary parts.

Yours faithfully,

Ken England VK4JPE,
31 Morgan Street,
Rockhampton, Qld. 4700.
ar

REVIVE THE PAST TO BEAT RISING COSTS

The prospect of continuing price increases for 'black boxes' has been clearly indicated in the statements by major resellers in the October issue of AR.

The situation has developed into a sort of "abandon hope all ye who enter the ranks of amateur radio" syndrome. And we in Australia, having to face up to the politically declared "Banana Republic" image see little prospect of an immediate improvement.

So we must seek a strategy which will, for the time being at least, retain the interest of existing amateurs and appeal to prospective enthusiasts.

My embryo proposal has been discussed with a number of amateurs, both VK and DX, and has met with approval and encouragement. Perhaps many will consider it a backward step and condemn the thought as contrary to the advancement of the art.

My proposal is to set aside a portion of certain bands, say 2, 6, 10, 15 and 80 metres, for the use of low powered, low cost home-brew equipment. The band portions could even be part of the novice spectrum already allocated.

The scheme would enable fledglings to make their first flutter with home- brew gear on both AM and DSB. The components could readily be gleaned from discarded black and white television sets. Likewise, it would provide the old timer with the means to fire-up his nostalgia and revive a lot of memorabilia.

I, for one, will be an enthusiastic participant.

Sincerely,

Geoff Switzer VK2SR,
53 Turf Street,
Grafton, NSW. 2460.
ar

COCOS-KEELING

I am more than a little disappointed in the *How's DX?* editor's treatment of the article on Cocos-Keeling Islands in the October AR.

The story is full of holes, omissions and in fact does little to enlighten the reader about this amazing coral island. Further, the editor hardly touches on the main reasons for any DXer to be interested in the location, which would be, put simply, to make contact with it on his favourite band.

For some time now, I have held the belief that there is severe criticism and discrimination against those amateurs, who by their individuality and different pursuit, dare to set themselves apart from the so-called norms of amateur radio.

If you behave or do things in a different way, then you can expect to be ostracised by the mainstream. In this case, that mainstream would appear to be represented by the WIA and in particular, those in the "know" about DX and such things.

Further, if you do things in the accepted way then you are also accepted as a friend of the WIA or its DX chasers.

The Editor's "obvious" omissions in his story on Cocos are lamely excused by the statement "however it is impossible to list all operations from this area."

His weak attempt gives credit to the "accepted" operations and credits the reduction of Cocos on the world "most wanted list" to the operations of only three stations.

The itinerant nature of the RAAF visits to Cocos and the nature of VK9NYG's operation, confined to the Novice bands, did little to reduce Cocos on the world want list. Anyone who consults the lists from that era will confirm this argument. The only significant reduction in the want list on Cocos Islands occurred after the VK9YL/VK9YS operation in 1979 and VK9YM/YT in 1982; totals for both operations, 50 000 plus.

The message to non-conformists is loud and clear, between the lines. Fortunately, maybe only 12 000 people read the column and over four times that worked the island by way of a non-aligned DXpedition, just as they did when they worked Heard Island, but that's another story, just like the six metre operations from VK9Y and VK9X which netted 20 000 contacts and 25 countries. Try and find that in any WIA journal.

Steve Gregory VK3OT/9YT,
PO Box 622,
Hamilton, Vic. 3300.
ar

SETTING THE RECORD STRAIGHT

My attention has been drawn to an article in a United States magazine which stated that, following the opening of the 12 metre band for American use, the first DX contact was some 20 minutes or so later.

I would like to set the record straight, at least in our own magazine, by advising that the band was opened on June 22, 1985 at 0000 UTC and I was immediately in QSO with N6JFG, Los Angeles, and subsequently with other stations. We set up a calling channel on 24.950 MHz and this system remains in use. Brian K6STI, formerly of San Francisco, but now at Manhattan Beach, LA, maintains a regular listening watch, either side of 0000 UTC and I do the same at this end.

There are good openings and we have found that if the 15 metre band is anywhere near operational, then there is a good chance on 12 metres. It would be nice to have more participation by VKs on this WARC band.

Very 73,

Joe Ellis VK4AGL,
Burnside Road,
Nambour, Qld. 4560.
ar

OPERATION RALEIGH 1984-1988

An opportunity has arisen for amateurs to become associated with *Operation Raleigh* by offering assistance as may be required to the flagship *Sir Walter Raleigh* as she visits the various Australian ports. Proposed dates are — Brisbane November 26 to December 7; Sydney December 9 to 12; Melbourne December 15 to 26; and Fremantle January 3 1987.

The vessel is an ex-Hull Trawler of 1900 tonnes and has been converted for use as a support vessel for various phases of Operation Raleigh. The ship's Radio Officer, David Legge, is also a radio amateur (G3SYF), and has been allocated the call sign VK4SWR/MM and will use this call sign on the Australian coast. The call sign GB0SWR/MM is used when the vessel is at sea.

An additional radio amateur is normally welcomed on board as there is a requirement for a skillful, experienced man to undertake the servicing of any of the radio equipment used in the field, either on vehicles or boats, as required.

The amateur on board has the use of a FT-757 and the unique opportunity of being able to make many DX contacts from *Sir Walter Raleigh* to other amateurs world-wide. It would be much appreciated if representatives from local radio clubs would visit the vessel whilst she is in their vicinity, to offer any assistance with technical service and/or the amateur communications. Any further information may be readily available per telephone (02) 477 6275 or from the undersigned.

Al Davis-Rice VK2AXR,
396 Pacific Highway Hostel,
Hornsby, NSW. 2077.
ar

RECENT MOOTING

I write this letter somewhat hesitantly, I have been an amateur for six years and prior to that I spent several years as a professional operator. In that time I have not perceived, until recently, a threat to the enjoyment of our hobby that I deemed serious enough to cause me to put pen to paper.

The threat to which I refer is the recent mooting by some, to have a further class of licence introduced, the emphasis of which would be on the technical side rather than operating ability; ie Technician Class, and it is my opinion that, if these moves were to succeed, it would be to the detriment of all except the few, who I have noticed, with professional links with the electronics industry and would therefore slot neatly into this class without further effort, particularly in the area of CW.

These persons would have us believe that the average operator would lose nothing through the introduction of this licence. I say rubbish. At present, and after years of study, I have, in my opinion, reached the zenith of amateur radio by having obtained an 'unlimited licence' and the only way I can see of introducing a further class of licence, with the privileges that go with it, is at the expense of others such as myself.

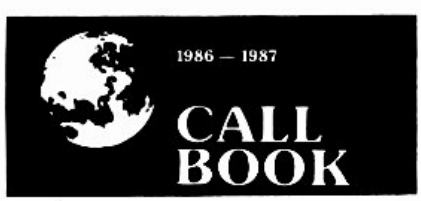
At the very least, I envisage a loss of a portion of the spectrum to these 'up market limited operators.' This type of licence will not open any further entry points into the hobby, as the present limited licence caters quite adequately for those having difficulty with CW and can only serve to create further divisions.

I would object to losing a portion of the HF band to under qualified operators. If their interest lies purely in the technical aspects of radio and not in sharpening their operating skills, it would be advantageous to both them and the rest of the hobby if they operated QRP into a dummy load, it would save power for them and spectrum space for the rest of us.

I urge all true operators to reject these proposals . . . outright.

Yours sincerely,

Ross Cummins VK2CRJ,
39 Hague Street,
Rutherford, NSW. 2320.
ar



Have you noticed any errors or omissions in the 1986/87 Call Book?

Please advise the WIA of any corrections as work has commenced on the 1987/88 edition.

Write to: PO Box 300, Caulfield South, Vic. 3162.

Please enclose information as in Call Book and corrected information!

Silent Keys

It is with deep regret we record the passing of —

MR P C ALDRED	VK4CA
MR A E BELL	VK3ABE
MR D E GARDNER	VK3PBJ
MR C J MARTINSON	VK3YSG
MR JACK C TURNER	VK2AJQ

Obituaries

STEWART D P SMITH VK4LA

Old-timer Stewart Smith VK4LA, became a Silent Key suddenly in the late evening of May 20, 1986. His passing leaves a noticeable gap among the many amateur operators who were proud to have called him their friend.

Stewart became a licensed operator on June 1, 1934, at which time he was a member of the Technical Staff of Radio Station 4BC, in Brisbane. He remained with the station until August 1941, when he joined the RAAF. He later saw service in the United Kingdom, as a Wireless Navigator in 456 Squadron, RAAF and was mentioned in Despatches.

After the cessation of hostilities Stewart returned to Australia and soon after was appointed in charge of the Technical Section of the Visual Education Branch, in the Queensland Department of Education. He remained with the Department until his retirement in 1979.

He was a true "Foundation Member" of *Jamboree on the Air* in Australia, taking part as an amateur operator since its inception in 1958 and continued his association with every one of these events, as late as 1985. He was instrumental in arranging for the procuring of the first licence for a Scout or Guide Headquarters Amateur Radio Station in this country, when in 1964 he assisted the Queensland Branch Headquarters obtain its licence and call sign — VK4QH (now VK4SAA). He was the nominated Station Manager until he retired for health reasons a few years ago and for his services to the Association was awarded the gold "For Services Rendered" Badge, an award he wore with pride.

Even after his retirement as Station Manager, Stewart continued to maintain a keen interest in this station.

Stewart's final contribution to Radio Scouting and Guiding was in January 1986, when he offered his services, and was accepted, as Station Manager for the International Guide Camp Broadcast Station, operating out of their camp at Greenbank, in Queensland with the call letters 4NKN.

Stewart made many friends in Scouting and Guiding circles at all levels from Chief Commissioners, down to the boy and girl level, because of his friendliness and ever ready willingness to explain amateur radio fundamentals to keen Scouts and Guides. He was sadly missed in this year's JOTA.

He is survived by his wife, Brenda, daughter Jillian, son-in-law Lester, and devoted grandchildren, Kate and Stephen. He is sadly missed by them, as well as his friends in the amateur radio movement, Scouting and Guiding, all of whom valued his friendship so highly.

—Contributed by Noel Lynch VK4BNL and Jack Griffin VK4JG

JOHN B RYAN VK3AZA

It is with regret that I announce the death of John at the Caritas Christi Nursing Home, Melbourne, on October 3, 1986. John, aged 71 years, had spent most of the last 12 months in various hospitals receiving attention.

In the 1930s, John joined the State Electricity Commission of Victoria Electrical Laboratory, Yarraville. With the outbreak of World War II he joined the RAAF and, as a member of Aircrew, carried out many missions as a navigator.

With the cessation of hostilities, John returned to the SEC and, until his retirement, was actively engaged, as Design Engineer, in protection and stability studies associated with the system operation.

In the 1970s, John took out an amateur radio licence, thus making many overseas and Australian friends. John also gave a considerable amount of time as a volunteer worker in the running of the WIA Victorian Divisional Office.

John is survived by two sons, Daniel and Mark, and a daughter, Julie, who resides in California, USA.

On behalf of his amateur friends and myself, I wish to offer thanks for his friendship.

Reg Busch VK3LS

ar

MAURICE (MAURIE) PFEFFER VK4ANU

The untimely death of Maurie on September 30, 1986 robbed the Darling Downs Radio Club of one of its most enthusiastic members.

At the time of life when most hardworking and successful persons are considering retirement, Maurie turned his attention to amateur radio in 1980, and quickly progressed to his full call.

His dedication to the hobby was shown by his faithful attendance at executive and club meetings. This necessitated a round trip of 200 km from his agricultural property, sometimes twice a month.

He served his fellow amateurs with regular participation in many club nets and as net controller his big signal was heard far and wide.

In common with all other discerning operators, he devoted many hours to home-brew antennas and his many friends followed, with great interest, his persistent attempts to defy the law of gravity and keep his giant three-band quad airborne.

Two more of his many talents were directed towards the Brass Band and he was a foundation member of the Pistol Club.

Despite extensive chemotherapy and radium treatment, his health continued to decline.

A very close family man, Maurie will be sadly missed by his wife Melba, their children and their families, and his many, many radio friends, including the members of the VK4 Disabled Persons Radio Club (VK4BTB).

Maurie's attitude towards this Club was one of interest, companionship and concern. His able support could always be relied upon during Club activities and he rarely missed the weekly net on 80 metres.

Maurie and Melba.

Even in times of severe illness, his cheery manner always brightened the day. He will be sorely missed.

Deepest sympathy is extended to Melba and family.

—Contributed by Eric Wisseman VK4ADA and Roley Norgaard VK4AOR, on behalf of the Darling Downs and the VK4 Disabled Persons Radio Clubs.

ar

BILL DOUGLAS VK3GA

Bill was a veteran of both World War I and World War II.

Enlisting for the first conflict at the age of 17 (having relinquished his position as a Junior Teacher at Mount Macedon), Bill was drafted into the 4th Division AIF, and left Australia as a member of the 8th General Service Reinforcement. In England, he was transferred to the Artillery, and on arrival at Le Harvre, France, was ordered to join the 111th Howitzer Battery. He served with this unit for the remainder of the war, and action took him to Northern France, including a spell in one of the most hard- fought campaigns around Villers-Bretonneux. He gained the rank of Artillery Sergeant. At the close of hostilities, he remained for a time as a member of the Australian Graves Detachment.

After three years service, Bill returned to civilian life and took up a university course, gaining the degree of Bachelor of Laws. He re-entered the teaching service and was appointed to various country schools, including Lavers Hill, where, in January 1929, he was licenced as VK3GA. On April 18, running 2.1 watts input from a dry battery, he made his first amateur radio contact, with VK3PP Captain Payne, Patron of the WIA. This was the first of some 16 000 contacts which Bill was to make in the following years. His QSL card, of novel design at that time, depicted the now familiar boomerang with the words, "Comes back to you."

Lavers Hill was the scene of some unique public service. Test cricket was of intense interest in those days, and with the cooperation of the local postmistress, who was also the telephone operator, Bill relayed the cricket broadcasts direct from England to all subscribers in the district, Nothing could have made him more popular.

By 1934, Bill had gained a second university degree — Bachelor of Arts. War clouds loomed again. In 1940, after enlisting in the AIF, he transferred to the RAAF, becoming an Education Officer. 1943 saw him in New Guinea with 9 Operational Group, with service at Milne Bay, New Britain and Arawe.

Discharged in August 1945, he resumed teaching and became involved in the Victorian State Schools Sport Association. Amateur radio was re-activated. Bill's call was regularly heard on CW, and DX was the main interest.

An intensely active person, Bill was not only a keen gardener, amateur carpenter and decorator, but also an enthusiastic sportsman, his proficiency at tennis even when in his late 60s earning him considerable acclaim. Amateur radio claimed his quieter moments. Bill's shack, with its tiered display of cards was colorful, effective and impressive. Countries confirmed could be proved in a second. There were 286 of them.

This year a tower and four element beam had gone up behind the garden. Bill, now one of the oldest active VK amateurs, had hoped to extend his DX tally. Unfortunately, illness beset this modest veteran and he passed away on September 8, in his 87th year.

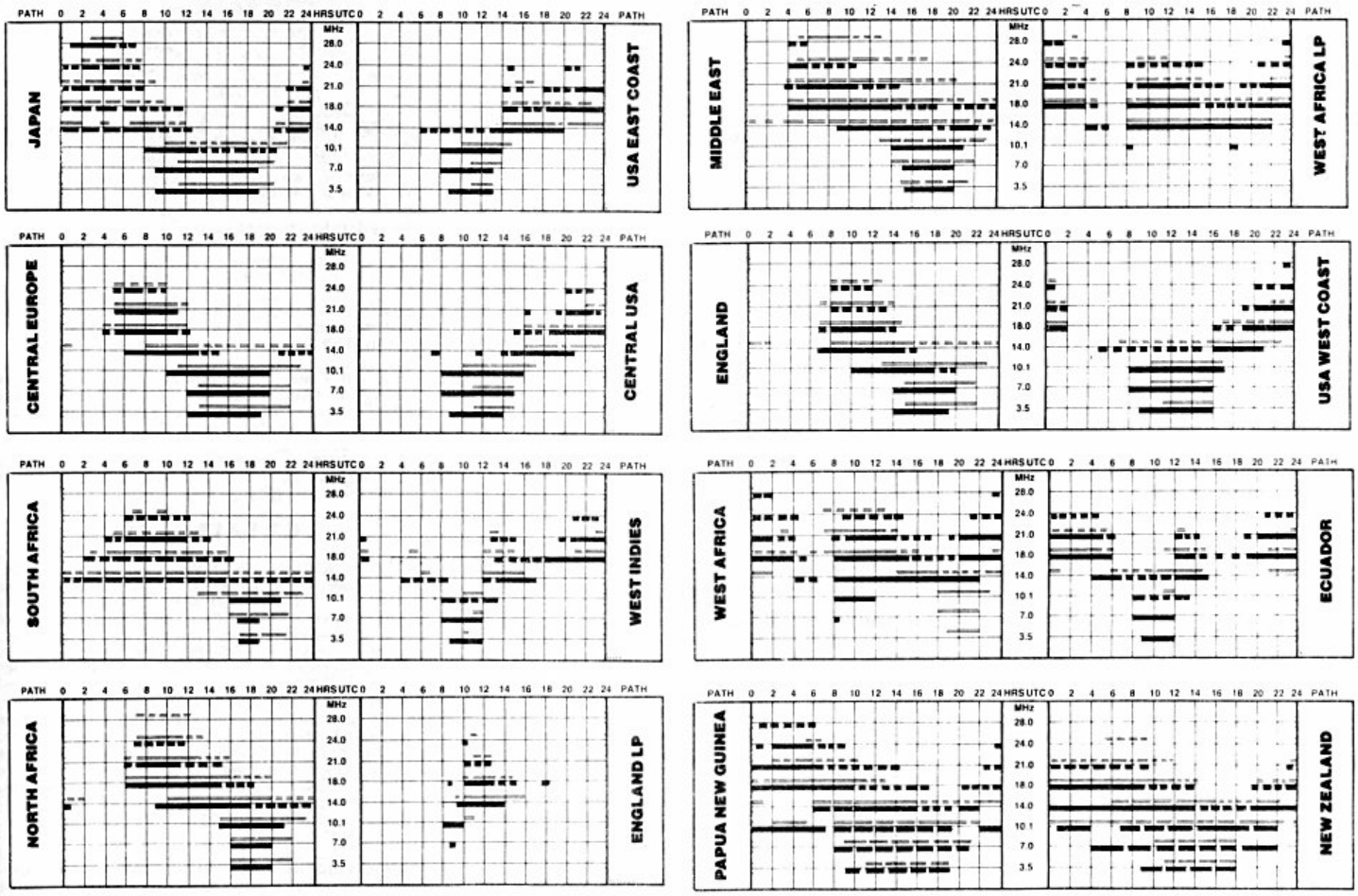
To his wife Lorna, his daughter and four sons, amateurs who remember Bill extend their kindest thoughts.

Ivor and Mavis Stafford VK3XB and VK3KS

ar

Ionospheric Predictions

Len Poynter VK3BYE
14 Esther Court, Fawkner, Vic. 3060



LEGEND
From Western Australia (Perth)
From Eastern Australia (Canberra)

Mixed mode dependent on angle of radiation (long broken lines).

Better than 50% of the month, but not every day (continuous lines)

All paths unless otherwise indicated; (ie LP = Long Path) are Short Path.

Less than 50% of the month (short broken lines).

Predictions are presented courtesy of the Department of Science, IPS Radio and Space Services, Sydney.

Solar Geophysical Summary

AUGUST

Solar activity continued to be low in August with no energetic solar flares observed.

A number of small regions were visible on the solar disc during the periods 01-09, 12, and 19-31. The small size of these regions is reflected by the daily 10 cm flux values for the month, peaking at 71 on the first with a low of 66 on 13th.

The regions observed were mostly 'reverse polarity' and the increasing presence of these regions indicates that the start of the new solar cycle is not too far away.

The 10 cm readings for the month were:
1=71, 2=70, 3=71, 4-7=70, 8-10=69, 11,12=67, 13=66, 14=67, 15,16=68, 17,18=67, 19=68, 20-22=69, 23,24=68, 25,26=69, 27-31=68.
Average was 68.65. Sunspot average was 7.4.

The running yearly average was 13.2 at February 1986.

GEOMAGNETIC

August was the most disturbed month since February 1986. There were three periods of disturbed conditions, the longest being 20-25th.

August 3,4 The field became disturbed early of 3rd and remained disturbed until the middle of the 4th. A=19,22.

August 20-25 The field became disturbed after 1500 UTC on 20th and remained that way until mid-25th. The most disturbed period was between 0300-0900 UTC on 22nd. A=16,27,24,26,19,19.

August 27 The field was disturbed between 0800-1400 UTC. A=18.

August 28-31 The field was disturbed from 1200 on 28th until 0600 UTC on 31st. The most disturbed period was 1800-2100 UTC on 30th. A=20,23,18.

—From data supplied by the *Department of Science IPS Radio and Space Services*, August 1986.

DEADLINE

All copy for inclusion in the February 1987 issue of Amateur Radio, including regular columns and Hamads, must arrive at PO Box 300, Caulfield South, Vic. 3162, at the latest, by 9am, January 2, 1987.

Hamads

PLEASE NOTE: *If you are advertising items FOR SALE and WANTED please write* ***each on a separate sheet of paper,*** *and include all details; eg Name, Address, Telephone Number, on both sheets. Please write copy for your Hamad as clearly as possible. Please do not use scraps of paper.*

* Please remember your STD code with telephone numbers
* Eight lines free to all WIA members. $9.00 per 10 words minimum for non- members
* Copy in typescript, or block letters — double-spaced to **Box 300, Caulfield South, Vic. 3162**
* Repeats may be charged at full rates
* QTHR means address is correct as set out in the WIA current Call Book

Ordinary Hamads submitted from members who are deemed to be in the general electronics retail and wholesale distributive trades should be certified as referring only to private articles not being re-sold for merchandising purposes.

Conditions for commercial advertising are as follows:

$22.50 for four lines, plus $2.00 per line (or part thereof)

Minimum charge — $22.50 pre-payable

Copy is required by the Deadline as indicated below the indexes on page 1 of each issue.

TRADE ADS

AMIDON FERROMAGNETIC CORES: Large range for all receiver and Transmitting Applications. For data and price list send 105x 220mm SASE to: **RJ & US IMPORTS,** Box 157, Mortdale, NSW. 2223. (No inquiries at office . . . 11 Macken Street, Oakley). Agencies at: Geoff Wood Electronics, Lane Cove, NSW. Webb Electronics, Albury, NSW. Truscott Electronics, Croydon, Vic. Willis Trading Co, Perth, WA. Electronic Components, Fishwick, Plaza. ACT.

NEW 80 METRE CRYSTALS: Frequency 3.530 MHz tol 50 ppm, temp range -10 to +60 degrees C, stability 50 ppm, $18 per crystal including post. Mail orders to: **ELECTRONIC APPLICATIONS,** 6 Binnari Road, Hornsby Heights, NSW. 2077.

WANTED — NSW

COPIES ELECTRONICS AUSTRALIA: 1981 onwards. Cash adjustment. Reply VK2IS QTHR.

OLD SLAVE CLOCKS: of the type that were driven off master clocks in the head office of factories & govt buildings of yesterday. Slave units were stepped on by a pulse every 30 secs. Ray VK2FW. Ph:(063) 65 3410.

URGENTLY WANTED: for Swan Cygnet tcvr. Valve type 6JH8 (balanced modulator). VK2APL. Ph:(02) 457 9157.

VALVES: Two 3-500Z valves. Price & condition to VK2DNA, QTHR.

WANTED — VIC

ANY "RARE" RECORDINGS: of amateur radio contacts for Volume 2 of "The Sounds of Amateur Radio." We are particularly interested in recordings of contacts on Bands not now available to Australian amateurs, eg 112, 288 MHz, etc. We are also looking for recordings of unusual contacts, eg from Balloons, Aircraft, Submarines, etc. Any recording format can be handled from cylinders to CD. In the first instance please write to: Peter Wolfenden VK3KAU, c/- Federal Office, PO Box 300, Caulfield South, Vic. 3162. Please do not send recordings. Copies of Volume 1 "The Sounds of Amateur Radio" are still available for $7, plus post & packaging. Inquire at your Divisional Bookshop or the Federal Office.

DETAILS FROM CLUBS & GROUPS: about their formation & activities so they can be included in the Club Portrait series in AR magazine. Portraits already done on the NERG, GGREC & LFARG. Some brief details & contact name, plus phone number to Jim Linton VK3PC, QTHR.

HUSTLER MOBILE SUPER: resonators for 80 & 40 m. Iambic paddles, amateur orientated programs for Amstrad Disc & Microbee 32k computers & Icom IC-735 or IC-730. Must be in excellent condition. George VK3CGK, QTHR. PH:(03) 337 4903.

POWER PACK: for Icom ICBP-6, less batteries. Outside appearance unimportant. Reply in writing to: VK3RM, c/- Eliza Lodge, 347 Nepean Highway, Frankston, Vic. 3199.

RADIO CLUB: wants reasonable cost solid state 6m FM tcvrs (2) to complete repeater project to serve Melbourne area. Contact Kerry VK3KFC. Ph:(059) 96 3580.

WANTED — QLD

ANTENNA TUNING CAPACITORS: 200 pF single & dual section. Ceramic rotary switch 2-pole, 4-position. Ken VK4JPE, ex-VK4TPE, QTHR. Ph:(079) 22 4985.

URGENTLY REQUIRED: Instruction manual & circuit diagram for Yaesu FTDX-2000 linear. Will pay for copying & expenses. VK4FPO. Ph:(079) 27 1442.

ORIGINAL 110V POWER TRANSFORMER: for a Hallicrafter tx, model HT32 Mark 1. VK4KCF, QTHR. Ph:(07) 284 7739.

WANTED — SA

INSTRUCTION MANUAL or copy, or circuit diagram for Ten Tec 544 tcvr. Will pay for any expense incurred. Ph:(08) 271 0827.

FOR SALE — NSW

EIMAC 4CX 1500B: new in vacuum pack. $700. Socket to suit SK 800B & chimney SK 806. $400. Filament tranny included. Allan VK2AGR, QTHR. Ph:(044) 71 1059.

HF SIGNAL GENERATOR: AWA type 2-R7231. 92.7 kHz to 31.4 MHz with instruction manual. Very heavy — very stable. $250. No offers. Maurice VK2DFJ, QTHR. Ph:(02) 605 9127.

HY-GAIN TH6-DXX: 6 element beam. $450. Peter VK2CIM, QTHR. Ph:(060) 25 4066 AH. 25 1843.

ICOM IC-740: FM module fitted. WARC bands, PS-15 supply, hand-mic, desk-scanning mic. All as new. Boxes & manuals. $990. VK2BPO, QTHR. Ph:(02) 713 1831 AH or (02) 568 2085 BH.

ICOM IC-R71A RX: fitted with FM, manuals, etc. Emtron ETP-1 ATU, microwave modules 2m GaAsFET & 6m converters. All mint condition. $900. Ph:(049) 69 4281.

KENWOOD TS-530S: with YK88CN CW filter fitted. Excellent condition in original packing with manual. $600. FT101E. AC & DC cords, mic, etc. Excellent condition. Still has plastic covering. $425. VK2ALM, QTHR. Ph:(065) 52 4411 BH or (065) 53 5353 AH.

VZ-200/300 RTTY/CW INTERFACE: adjustable 45-99 Baud, 170- 850 Hz shift, 5-99 WPM CW. Paperwork includes instructions, circuit, PCB layout, PCB & parts list, plus free software. Send $19.35 ($18 + $1.35 p&p) + good qual C10 cass to Rudy VK2FIM, 1-6 Ida Street, Charlestown, NSW. 2290. Ph:(049) 43 7548.

YAESU FT-757GX TCVR: with MH-1BB hand scan mic. $1100. FC- 757AT auto antenna tuner $375. Both as new, complete with manuals & cartons. Bruce VK2BDX, QTHR. Ph:(02) 624 3017.

FOR SALE — VIC

BENCHER PADDLE: in unopened carton. Never used. Surplus to requirements. $150. Roth Jones. Ph:(03) 870 3333 BH.

COMMODORE CBM 4016: with Commodore Tractor Printer 4022 2 Model. C2N Data Cassette, user guide, Pet/CBM personal computer guide, RTTY/CW original software & other software. $450. Yaesu FT-107 with FC-107, FV-107 incl. IB-8 mic, instruction manuals, all in mint cond, in original cartons. $850. Icom IC-21A 2m FM. $135. Hans VK3DNS. Ph:(03) 555 8666, ext 17 BH.

CRYSTAL LOCKED AM HF BASE STATION: & mobile transceivers. Prices on application. Pat VK3ADN. Ph:(055) 96 2254.

FT-200 HF TCVR: with matching power supply & handbook. $200 or offer. VK3AQD, QTHR. Ph:(03) 459 6445.

TS-520S HF TCVR: $500. AT-200 antenna tuner $150. DG-5 digital display $150. Remote VFO 520 $175. Swiss quad 10m $100. Swiss quad 15m. $130. SP-520 external speaker. $50. MC-50 & MC-35 mics $100. 6m lattice tower with chimney strap & base $150. Diawa DR7600X rotator H/D $250. Siemans teletype $50. Or any offers. Rob VK3VOS, QTHR. Ph:(03) 366 3310.

PRINTERS: Honeywell 5X7 D/M 15 in Tractor F/D 1200 Bd RS232. GC. Decwriter 5X7 D/M 80 char tractor F/D 300 Bd RS232 on stand. EC. Both with keyboard. Best offers. Keith VK3AFI, QTHR. Ph:(052) 21 3658.

SHACK CONTENTS: Yaesu FTDX-401 tcvr, spare valves, Kenwood 9R59DS rx, SWR meter, electronic components. $500 the lot. Tony VK3DXS. Ph:(03) 725 8071.

TET HB-443DX: 4-band antenna, 4 element Yagi, has been strengthened as per AR article. Good condition. $480. Peter VK3QI, QTHR. Ph:(03) 29 6396 AH.

TRANSMITTING VALVES: all new in original cartons. 2 X 811A, 2 X 805, 4 X 807, 1 X 810, 4 X 6DQ5, 2 x Jumbo Sockets for 805, 2 X used 805. The lot for $125. Will not separate. Peter VK3APS, QTHR. Ph:(03) 836 7458.

YAESU FRG9600: VHF/UHF communications receiver. 10 months warranty. Complete with service manual. Mint condition. $1080. Rodney VK3UG, QTHR. Ph:(057) 62 1454 after 7 pm.

YAESU MUSEN ANTENNA TUNER FC-707: with Mobile Mounting Bracket. $200 ONO. Yaesu Musen VFO FV-107. $60 ONO. All phone calls returned. John VK3IC, QTHR. Ph:(03) 744 2506.

YOKOHAMA ELECTRIC: 0-260V 10A variac type adjustable auto- transformer. $100. Yaesu FL-2000B linear amplifier, 80-10 metres with pair 572B/T160 tx triodes in class B grounded grid configuration. What offers? VK3HC, QTHR. Ph:(03) 52 1608.

FOR SALE — QLD

AMATEUR RECEIVER: FRDX-400 160-10 with 2m & 6m modules plus CB band. 4 mech filters, pre-selector tuning, squelch & rejection tuning. Includes matching speaker. $150 ONO. Ph:(07) 369 1706.

COMPLETE AMATEUR RADIO STATION: (ex VK4PB). Main equipment includes Drake SPR-4 rx (1971), Drake T-4XC tx (1973), Yaesu Linear Amplifier, Katsumi Electronic keyer, Diawa Speech Processor, Kenwood Dummy Load, & Osker SWR/Power Meter. Also included is a 75' ex-DCA tripod tower with a Hidaka Monobeam Antenna & rotor system (currently assembled to 60' & to be removed by purchaser). Many other items are also included. Would prefer to sell as a complete package for $2000. Contact Mark Littleboy. Ph: 377 9541 BH or 379 1992 AH.

KENWOOD TS-520 TCVR: very good condition. No mods, manuals mic & leads. $470 ONO. VK4WR, QTHR. Ph:(071) 41 1315.

PHILIPS 828 MK 11: Currently working on 2m. Has remote control board & provision for 10 channels. Ideal start for a repeater. Would consider a swap for another 2m rig. Richard Burden, VK4FKB. Ph:(079) 83 2871.

SWAN SW-240: complete with power supply, manual & circuit diagrams for both units. Ex-deceased estate. $240 ONO. VK4FPO. Ph:(079) 27 1442.

FOR SALE — TAS

COMMUNICATIONS RECEIVER: Yaesu FRG-8800. Latest model, only 4 months old. This is the full coverage version, not limited to 2-30 MHz. New condition, with original packing & manual. Being sold due to purchase of IC-735 tcvr which has its own general coverage rx. Current new price for FRG-8800 full coverage model is $1259; asking $950 for this one. Also have FRV-8800 VHF converter, FRT-7700 antenna coupler & FIF-232C computer interface to sell by negotiation. Icom IC-730 HF tcvr. As new condition, with original packing & manual, now replaced by latest IC-735. Very small, good for base, portable, or mobile use. A really lovely rig to operate; has a particularly hot receiver with a mechanical filter. Tx 100W output, internally switchable to 50W for novice use. Comes with optional input/output interface & Yaesu noise-cancelling mic. Asking $750. Tom VK7TM, QTHR. Ph:(002) 39 1391.

ICOM IC-490A UHF MULTI-MODE TCVR: New idea/UHF repeaters & satellite operations. $700. Yaesu FV-101DM scanning ext VFO. New, suits FT- 101ZD Mk3. $165. VK7AN, QTHR. Ph:(003) 31 7914.

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SP-600 SWR/P 1.6-500 MHz	$299
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	RC5A-3	$621
KENPRO	KR-5400A	POA
	KR-5600A	POA
	KR-2000RC	$659
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LOUD & CLEAR

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The new IC-751A top-of-the-line HF base station transceiver is designed for the ham operator who demands high performance.
Whether entering contests or QSY'ing for pleasure, the 100 watt IC-751A incorporates the best features of the IC-751, and brings you to the forefront of technology with the following most-requested additions.
More CW Control. For the CW enthusiast, the new IC-751A includes an electronic keyer unit, QSK rated at up to 40WPM, standard FL-32A 9MHz/500Hz CW filter and CW sidetone to monitor your code in RX or TX modes … great for practice!
All Amateur Band Coverage. Includes general coverage reception from 100kHz to 30MHz, and may be easily modified for MARS operation.

Improved Smooth Tuning. The IC-751A features a newly designed tuning control for velvet smooth tuning.
Added LED Annunciator. For easy identification if you're using the tuning speed, dial, or band switching functions.
32 Memories. Mode and frequency data may be stored in any of 32 memories … all the memory capability that you'll ever need.
More Stable. Even in the receive mode, the IC-751A has a sophisticated thermal sensor to monitor the internal temperature. The sensor automatically activates the cooling fan which gives maximum stability … critical for optimum performance during contests.
Newly Designed Features. The IC-751A boasts a number of newly designed features for better performance … a new 9MHz notch filter that drastically reduces QRM, a new AGC system, a new compressor for better audio clarity, and a new AF gain control system that improves control of the CW sidetone volume.
Options Available. Options for the IC-751A include the IC-PS30 external AC system power supply, IC-PS35 internal AC power supply, IC-AT500 antenna tuner, IC-EX309 microprocessor interface connector, SM-8 or SM-10 desk mics, IC-2KL linear amplifier, RC-10 remote controller, SP-7 or SP-3 speakers, IC-EX310 voice synthesizer and GC-5 world clock.
Optional Filters. FL-52A CW 455kHz at 500Hz, FL-53A CW-N 455kHz at 250Hz, FL-63A CW-N 9.0106MHz at 250Hz, FL-33 AM 9.010MHz at 6000Hz, and CR-64 high stability 30.72MHz crystal filter.

Please send me details on:

☐ IC-751A ☐ ICOM's full range of communications equipment.
Senders details:

Name _____

Address _____

Postcode _____

Phone: (Business) (Home)

All stated specifications are approximate and subject to change without notice or obligation.
ICOM customers should be aware of equipment not purchased at authorized ICOM Australia Agents. This equipment is not covered by our parts and labour warranty.
POST TO: ICOM, 7 DUKE STREET, WINDSOR, VICTORIA 3181, OR PHONE (03) 51 2284 OR 529 7582.

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